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A Quarterly Journal of Natural History for the North of England

SMITHSONIAN

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## NOTES ON THE HALACARIDAE (ACARI) OF YORKSHIRE

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### INTRODUCTION

Twelve species of marine halacarids have previously been recorded from the Yorkshire area, e.g. *Halacarellus basteri*, *H. similis*, *Arhodeoporus gracilipes*, *Copidognathus brevirostris*, *Simognathus minutus*, *Lohmannella falcata*, *Rhombognathus magnirostris*, *Isobactrus setosus*, *Rhombognathides mucronatus*, *R. pascens*, *R. seahami*, and *Metarhombognathus armatus* (Moore 1973, Baker 1982). Most of these mites were collected from intertidal and subtidal algae.

The present paper deals with halacarids taken from sediment samples, collected both in shallow water at low tide and at depths down to 56 m. Nineteen halacarid species were found, 14 new to the fauna of Yorkshire waters, and two new to science.

### MATERIAL

In August and September 1975, Poizat studied the mesopsammal gastropod fauna along the Yorkshire coast between Whitby and Robin Hood's Bay (Poizat 1981). Sediment samples were taken by dredge or grab at depths from 11–56 m, and by hand along the shoreline. Details on the substrates and the positions of the stations are presented in Poizat (1981). The fauna was extracted using a modified Uhlig sea water ice technique (cf. Poizat 1975).

### TAXONOMY

In table I, the halacarids known from Yorkshire waters are listed. Reliable descriptions are added in square brackets, thus supplementing the original presentations.

#### *Anomalohalacarus poizati* n.sp. (Figs. 1–11)

Material: 9 females, 1 male, 3 protonymphs. 11–56 m depth (Stations 1, 2, 4, 5, 6, 7, 8, 15, 17); C. Poizat coll. Holotype: 1 female, 42 m, off Whitby, 9 September 1975; deposited in the British Museum (Natural History), London.

Female: Length of idiosoma 298–453 µm. The dorsal plates are delicate. The membranous integument is weakly panellled. The anterodorsal plate (AD) is oblong and rounded posteriorly; in the distal portion a slight panelling is seen due to insertion of muscular strings. Ocular plates are absent. The posterodorsal plate (PD) is divided into a right and a left plate. The first pair of gland pores are on the AD on level with leg I; the second pair is conspicuous, it stands on minute sclerites within the membranous integument; 2 pairs of gland pores are present on the PD, 1 in the anterior portion and 1 in the posterior (Fig. 1). The dorsal setae are long; the first pair (ds-1), stronger than the following ones, are on the AD; ds-2 to ds-5 within the membranous integument; the adanal setae (ds-6) are very minute (Fig. 1).

The ventral plates are small and delicate. The anterior epimeral plate (AE) is divided into a right and a left plate. On each of the 2 halves there are 3 small setae and the pore for the Claparède organ. The small posterior epimeral plates (PE) are placed near the posterior end of the idiosoma; on each plate, 1 dorsal and 3 ventral setae are seen. The small genital plate (GP) is divided into 2 halves. The first pair of perigenital setae insert within the membranous integument, well anterior to the genital plates; 2 pairs of setae stand, well separated, on the genital plates (Fig. 2). The genital sclerites are narrow. Subgenital setae are absent. Posterior to the genital plates, a closed genital groove is present. The anal valves are long and narrow, giving the end of the idiosoma a pointed outline (Fig. 2).

The gnathosoma is slender. The length of the rostrum equals that of the base of gnathosoma. The rostrum extends just beyond the middle of the second palpal segment (P-2). Two long maxillary setae insert on the rostrum. The rostral sulcus extends to the basal pair of the long maxillary setae. A minute dorsal seta stands at the base of P-2, a small spine on P-3, and 3 basal and a minute distal seta on P-4 (Fig. 3).

The legs are slender. Leg I is longer and stouter than the following legs; leg II is conspicuously smaller. The leg chaetotaxy is illustrated in Figures 4–7. In the middle of tibia I, 1 spine and 3 minute setae are present (Fig. 9). On tarsus I, 3 dorsal setae, 1

TABLE I. Halacarid species recorded from the Yorkshire coast. References in square brackets indicate supplementary reliable descriptions; an asterisk indicates that a description or taxonomic remarks appear in the text; N = new to the fauna of Yorkshire.

*Halacarus bisulcus* Viets, 1927 [Weinstein 1961] N  
*Halacarellus basteri* (Johnston, 1836) [Newell 1947]  
*Halacarellus southerni* (Halbert, 1915) [Bartsch, in press] N  
*Halacarellus striatus* (Lohmann, 1889) (= *Halacarellus similis* Viets, 1927) [Bartsch, 1976b]  
*Halacarellus* sp.\* N  
*Arhodeoporus gracilipes* (Trouessart, 1889) [Bartsch 1977a]  
*Arhodeoporus minor* Bartsch, 1977 N  
*Anomalohalacarus anomalus* (Trouessart, 1894) [Monniot 1967] N  
*Anomalohalacarus marcandrei* (Monniot, 1967) N  
*Anomalohalacarus minutus* Bartsch, 1976 N  
*Anomalohalacarus acnemus* n.sp. \* N  
*Anomalohalacarus poizati* n.sp.\* N  
*Copidognathus brevirostris* Viets, 1927 [Bartsch 1972]  
*Copidognathus fabricii* (Lohmann, 1899) N  
*Copidognathus lamellosus* (Lohmann, 1893) [Bartsch 1979] N  
*Copidognathus latistetus* Viets, 1940 [Bartsch 1977c] N  
*Copidognathus rhodostigma* (Gosse, 1855) [Bartsch 1979] N  
*Copidognathus rhodostigma rondus* Bartsch, 1979 N  
*Copidognathus tectirostris* Bartsch, 1979 N  
*Lohmannella falcata* (Hodge, 1863) [Bartsch 1977b]  
*Simognathus minutus* (Hodge, 1863) [Bartsch 1974]  
*Rhombognathus magnirostris* (Trouessart, 1889) [Newell & Andre 1959]  
*Isobactrus setosus* (Lohmann, 1889) [Newell 1947]  
*Rhombognathides mucronatus* (Viets, 1927) [Newell 1947]  
*Rhombognathides pascens* (Lohmann, 1889) [Newell 1947]  
*Rhombognathides seahami* (Hodge, 1860) [Newell 1947]  
*Metarhombognathus armatus* (Lohmann, 1893) [Newell 1947]

Figs. 1–11. *Anomalohalacarus poizati* n.sp.

1. Idiosoma, dorsal view, ♀; 2. Idiosoma, ventral view, ♀; 3. Gnathosoma, ventral view, ♀; 4. Leg I, lateral view, ♂'; 5. Leg II, ventral view, ♂'; 6. Leg III, lateral view, ♂'; 7. Leg IV, lateral view, ♂'; 8. Posterior idiosoma, ventral view, ♂'; 9. Tibia I, ventral view, ♀; 10. Tarsus I, lateral view, ♂'; 11. Tarsus II, lateral view, ♂'.

(1 scale division = 50 µm; AD = anterodorsal plate; AE = anterior epimeral plate; ds-1 = first pair of dorsal setae; eup = eupathidia; gl-2 = second gland pore; GP = genital plate; P-2 = second palpal segment; PD = posterodorsal plate; PE = posterior epimeral plate)

# A FUNGUS FLORA OF YORKSHIRE 1985



W.G. BRAMLEY

## A New Fungus Flora of Yorkshire 1985

One of the first illustrated accounts of fungi in the English language, with drawings, was printed in Yorkshire in 1788 (*An History of Fungusses Growing about Halifax* by James Bolton). It was in Yorkshire that the national society concerned with fungi (the British Mycological Society) was born, at a meeting of the Mycological Section of the Yorkshire Naturalists' Union. Many of the first records of fungi have been made in the county and more is known about the occurrence and distribution of fungi in Yorkshire than of any similar sized area in the world. This new hardback book lists the microscopic and larger fungi (including mushrooms and toadstools) found in Yorkshire during the last 100 years. Where they have been found over the years, the location of preserved herbarium specimens and a detailed list of papers and books, which can be referred to by the reader, are also included. It is based on the records made or recorded by Mr Willis Bramley of Pickering, since 1920, on behalf of the Mycological Section of the Yorkshire Naturalists' Union (Y.N.U.). The *Fungus Flora* is the successor to the 1905 *Fungus Flora of Yorkshire* by Massee & Crossland, and the 1937 *Catalogue of Yorkshire Fungi* by Mason & Grainger, both of which were published by the Y.N.U. Continuing in this tradition, W. G. Bramley's book provides for amateur and professional mycologist alike, a permanent record of what has been found in Yorkshire woods, fields and moors over the years. Edited by Roy Watling, Mike Richardson and Tom Preece, with the assistance of numerous specialists and field naturalists, it will automatically act as a stimulus to field studies of fungi in the county and throughout Britain. It has been printed at Leeds University and is being sold at cost price.



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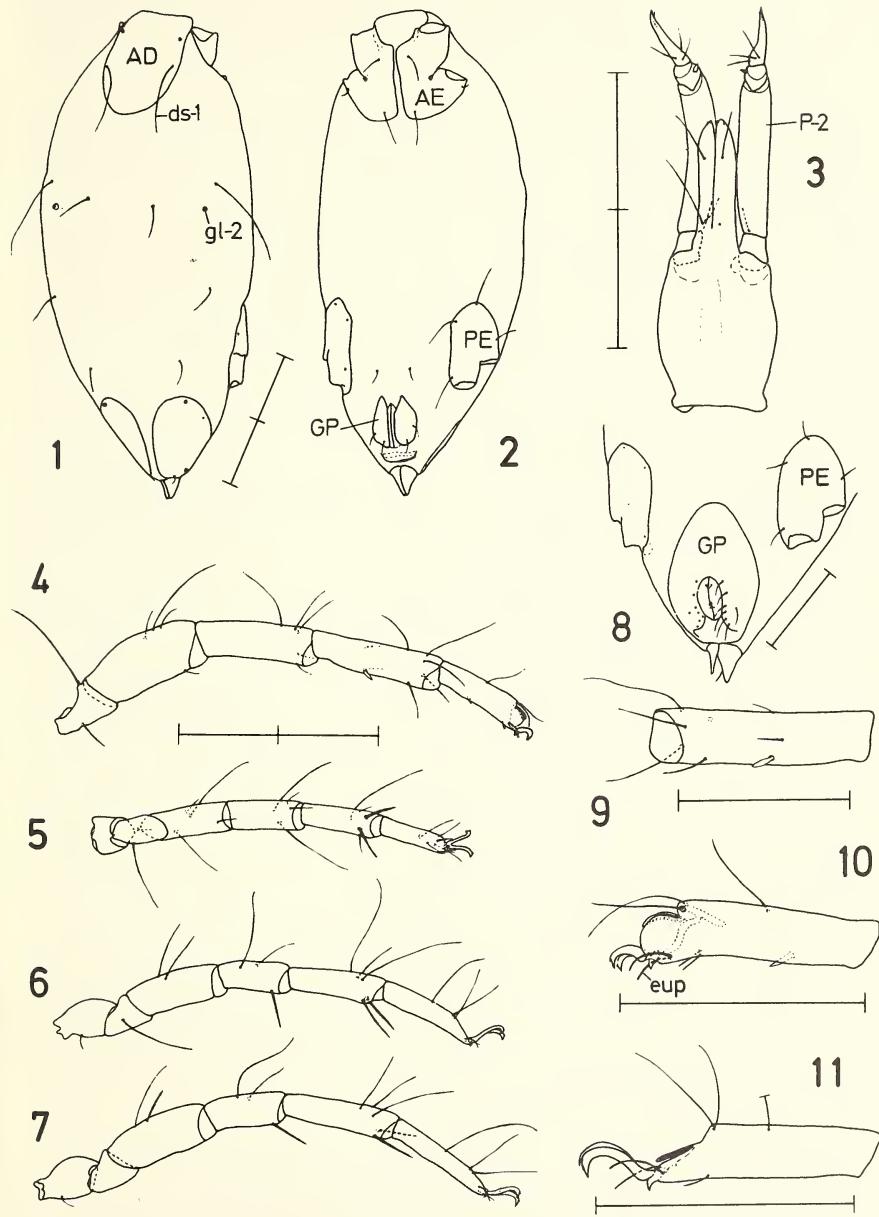
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ventromedial spine, 2 small ventral setae, a long seta-like solenidion and a famulus, both in dorsolateral position, and a pair of single eupathidia are present. The lateral and medial membranes of the claw fossa are huge (Fig. 10). On tarsus II, there are 3 dorsal setae, 1 ventral seta, a large utricular solenidion in dorsolateral position and a pair of single eupathidia at the tip of the tarsus (Fig. 11). The membranes of claw fossa are inconspicuous.

Male: Length of idiosoma 328 µm. In the male, the genitoanal plate is an oval shield, with its anterior end extending between the PE (Fig. 8). In the single male, 15 perigenital setae are present. The genital opening is oval. There are 3 pairs of minute subgenital spines on the genital sclerites.

Protonymphs: Length of idiosoma 307–312 µm. The protonymphs are similar to the adults, but in the protonymphs the PD is an undivided, quadrangular plate. The genital plate is small, almost quadrangular, with a pair of perigenital setae and a wide genital groove. The chaetotaxy of tibia I, tarsus I and tarsus II resembles that found in the adults.

Remarks: Characteristics in *Anomalohalacarus poizatii* are: PD divided. Genital groove in females closed. In males, 15 perigenital setae present. One spine and 2 minute setae in the middle of tibia I. A ventromedial spine on tarsus I. One minute ventral seta on tarsus II. Rostrum not extending to end of P-2. Only 1 seta on P-2.

*A. poizatii* is similar to *A. arenarius* (Bartsch 1976a) and *A. ruffoi* (Morselli & Mari 1979), but in *A. arenarius*, the second pair of the gland pores are inconspicuous; in the males, 60–62 perigenital setae are present; the anal valves are short and round, thus the idiosoma is truncate posteriorly. In females of *A. arenarius*, the second pair of the perigenital setae insert close to the distal pair. In *A. ruffoi*, the rostrum is much longer than the base of the gnathosoma, the rostrum extends almost to the end of P-2; in males, ca 100 perigenital setae are present.

#### *Anomalohalacarus acnemus* n.sp. (Figs. 12–22)

Material: 4 females, 5 males, 3 protonymphs, 1 larva. 40–54 m depth (Stations 3, 9, 16, 18, 23); C. Poizat coll. Holotype: 1 male, 40 m, off Whitby, 30 August 1975; deposited in the British Museum (Natural History), London.

Female: Length of idiosoma 242–291 µm. Similar to males except for the genital region. The genital plate is divided and drop-shaped. One pair of perigenital setae insert on minute sclerites within the membranous integument, 2 pairs on the genital plates. Posterior to the genital plate, a closed genital groove is present (Fig. 14).

Male: Length of idiosoma 245–303 µm. The AD is 60 µm long. Ocular plates are lacking. The PD is divided. The first pair of the gland pores stand on the AD, the second pair within the membranous integument; 2 pairs are found on the halves of the PD. The dorsal setae on the idiosoma are long and slender. The ds-1 insert at the lateral margin of the AD, halfway between the anterior and posterior end of the plate. Ds-2 to ds-5 are situated as illustrated (Fig. 12). The adanal setae are minute, standing at the distal end of the PD.

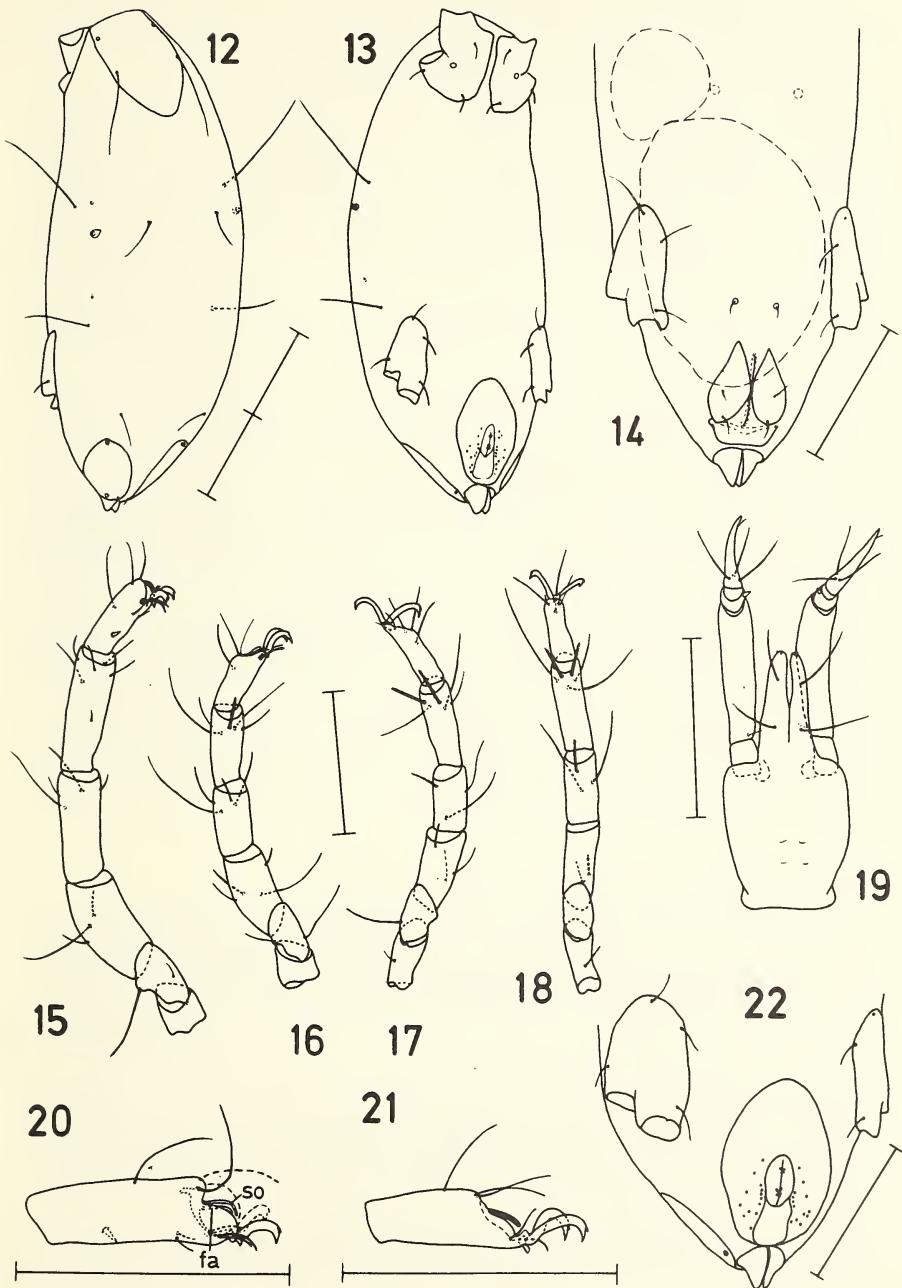
The AE is divided; each plate is provided with 3 slender setae (Fig. 13). The PE are small; on each, 1 dorsal and 3 ventral setae are present. The genital plate is undivided. There are 12–14 pairs of perigenital setae around the genital opening and genital groove. No setae are found on the anterior portion of the genital plate. Along the margin of the genital sclerites, 3 pairs of minute subgenital spines are present (Fig. 22). The spermapositor does not extend beyond the genital plate. The anal valves are long, and thus the end of the idiosoma is pointed.

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#### Figs. 12–22. *Anomalohalacarus acnemus* n.sp.

12. Idiosoma, dorsal view, ♂;
13. Idiosoma, ventral view, ♂;
14. Posterior idiosoma, ventral view, ♀;
15. Leg I, medial view, ♀;
16. Leg II, medial view, ♀;
17. Leg III, ventral view, ♀;
18. Leg IV, ventral view, ♀;
19. Gnathosoma, ventral view, ♀;
20. Tarsus I, lateral view, ♂ (medial setae, membrane of claw fossa and claw in dashed line);
21. Tarsus II, lateral view, ♀;
22. Posterior idiosoma, ventral view, ♂.

(1 scale division = 50 µm; fa = famulus, so = solenidion)



The gnathosoma is slender; the rostrum almost as long as the width of the gnathosomal base. The rostrum bears 2 pairs of long maxillary setae. The rostral sulcus extends beyond the basal pair of the maxillary setae (Fig. 19). A minute dorsal seta is present at the base of P-2, a small median spine on P-3, and 3 basal and a minute distal seta on P-4.

The legs of *A. acnemus* are slender. Leg I is slightly longer than the following ones. The chaetotaxy of the legs is illustrated in Figures 15–18. Only 1 small, slender seta is present in the middle of tibia I. On tarsus I stand 3 dorsal setae, a bacilliform solenidion and a famulus in dorsolateral position, 1 ventromedial spine, a pair of ventral setae and a pair of doubled eupathidia (Fig. 20). On tarsus II there are 3 slender dorsal setae, a tube-like solenidion in dorsolateral position, and a pair of single eupathidia on the tip of the tarsus, but no ventral seta (Fig. 21). The lateral claws on tarsus I are smaller than those on the following legs. All claws have an accessory process, but no claw comb. On all tarsi, the median claw is minute.

Juveniles: Length of idiosoma in protonymphs 211–273 µm, that in a larva 192 µm. In protonymphs and larva the PD is a quadrangular plate; it is not divided as in the adults. The chaetotaxy on tibia I corresponds to that characteristic for adults. The anal valves are long.

Remarks: Characteristics in *Anomalohalacarus acnemus* are: PD divided. Genital groove in females closed. In males, 12–14 pairs of perigenital setae present. Only 1 slender seta present in the middle of tibia I. No ventral seta on tarsus II. Rostrum almost as long as width of gnathosomal base. Only 1 seta on P-2.

The chaetotaxy of tibia I in *A. acnemus* resembles that known for *A. affinis* (Morselli & Mari 1981) and *A. intermedius* (Bartsch 1976a), but in males of *A. affinis*, the 2 halves of the PD are bean-shaped, with a concave medial margin; there are 105–120 perigenital setae present. In *A. intermedius*, the anal valves are short and round; in females, the genital grooves are open; in males, the number of perigenital setae is less than in *A. acnemus*; the ds-1 insert in the anterior half of the AD.

In Bartsch (1983), *Anomalohalacarus* was placed within the subfamily of the Halacarinae. As stated above and in other descriptions, the solenidion on tarsus II is situated dorsolaterally, while in all other genera within the Halacarinae this solenidion is dorsomedial. This means, either the position of the solenidion is not as important as supposed by Newell (1947, 1953) and Bartsch (1983) or the genus *Anomalohalacarus* ought to be removed from the subfamily of the Halacarinae. As the characters of *Anomalohalacarus* do not agree with any of those in the other subfamilies, a new subfamily Anomalohalacarinae ought to be raised.

#### *Halacarellus* sp.

Material: 1 larva. 54 m depth (Station 18); C. Poizat coll.

Length of idiosoma 184 µm. All dorsal plates (AD, OC and PD) are conspicuous. The rostrum extends to the end of P-2. On P-2, there is a short, spur-like, slightly plumose dorsal seta, and on P-3 a medial spur-like seta. On telofemur I, 3 dorsal setae are found, 2 of them are slender and seta-like and 1 slightly thorny and spur-like.

Similar spur-like setae on P-2 and telofemur I are not found in any of the known adult *Halacarellus*.

#### ECOLOGICAL SURVEY

In Table II, the number of specimens found is summarized. Abundant species are: *Arhodeoporus gracilipes*, *Copidognathus fabricii*, and *C. rhodostigma*. Both varieties, *C. rhodostigma typicus* and *C. rhodostigma rondus*, were present in almost equal numbers. *Arhodeoporus minor* was collected in the deep water stations only. Off northern Brittany and in the Irish Sea, *Arhodeoporus minor* showed a similar preference for deep water sediments (Bartsch 1980 and in press). The genus *Anomalohalacarus* was missing in samples from shallow water. On the other hand, most rhombognathines were found along the shore.

TABLE II. Number of halacarids found in samples taken on the Yorkshire coast.

species	gear number of samples depth (in m)	dredge 10 11-56	grab 7 54	by hand 3 0.1
<i>Halacarus bisulcus</i>		1	0	0
<i>Halacarellus southerni</i>		7	0	0
<i>Halacarellus</i> sp.		0	1	0
<i>Arhodeoporus gracilipes</i>		390	91	39
<i>Arhodeoporus minor</i>		29	4	0
<i>Anomalohalacarus acnemus</i>		7	6	0
<i>Anomalohalacarus anomalus</i>		1	0	0
<i>Anomalohalacarus marcandrei</i>		4	2	0
<i>Anomalohalacarus minutus</i>		3	0	0
<i>Anomalohalacarus poizati</i>		11	2	0
<i>Copidognathus fabricii</i>		119	17	14
<i>Copidognathus lamellosus</i>		5	1	0
<i>Copidognathus latisetus</i>		1	0	0
<i>Copidognathus rhodostigma typicus</i>		201	178	39
<i>Copidognathus rhodostigma rondus</i>		586	62	30
<i>Copidognathus tectirostris</i>		6	1	0
<i>Lohmannella falcata</i>		1	0	0
<i>Rhombognathides mucronatus</i>		0	0	1
<i>Rhombognathides pascens</i>		7	0	12
<i>Rhombognathides seahami</i>		0	0	6

Independent of substrate and depth there was a large uniformity in the halacarid fauna. As the Uhlig sea water ice technique often is inefficient when extracting marine mites, the results might be influenced by the extraction method.

In two of the grab samples the surface sediment layers were handled separately from the underlying columns. In the halacarid fauna, there was no marked difference between the upper and the lower sediment layers.

According to Poizat (1981), in most of the grab samples halacarids made up almost 10 per cent of the mesopsammal fauna. The highest percentage, 21 and 25 per cent, were found in 2 samples from depths of 51 and 52 m (Stations 7 and 23) in very coarse sediment, which held large amounts of calcareous particles. In sediment samples taken along the sublittoral fringe, the nematodes, at almost 90 per cent, dominated the fauna; the percentage of halacarids was less than 1 per cent (Poizat 1981).

#### ACKNOWLEDGEMENTS

I am grateful to Dr C. Poizat (Marseille) for collecting the halacarids and to Mrs C. Berger (Hamburg) for linguistic help.

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## THE WASPS AND BEES (HYMENOPTERA: ACULEATA) OF POMPOCALI, NEAR LEEDS: THE FIRST 27 VISITS

MICHAEL E. ARCHER

Pompocali is a 1.7 ha. (4.2 acres) site (GR SE 3742) lying to the east of Leeds between the villages of Thorner and East Rington and abutting on the south border of Hetchell Wood Nature Reserve.

Pompocali lies on the East Carlton Grit, a sub-division of the Millstone Grit, and was used as a quarry until the 17th or possibly the 18th century, when it became covered by oak trees, felled in the 1930s (Henderson 1979). At present, Pompocali consists of a central mound surrounded by a depression and a series of outer mounds. The tops of the mounds bear *Calluna* heath and the slopes, which are often steep, have bare patches so that the dry freely-draining sandy soil is visible. A network of paths has also resulted in bare areas of soil. Old tree stumps are scattered all over the site. The site is basically an open one, although some hawthorn and bramble have invaded in a few places.

The mounds have proved particularly attractive to nesting aculeate wasps and bees and after 27 visits 64 species have been found, which represents about a quarter of the Yorkshire list of wasps and bees. The site was visited from 1978 to 1983, with two visits in April, six in May, five in June, eight in July, five in August and one in September so that the active season when adult wasps and bees are on the wing has been covered.

Of the 64 species, 11 were solitary wasps, 41 solitary bees (Table 2), five social wasps (*Dolichovespula norvegica*, *D. sylvestris*, *Vespa rufa*, *V. germanica*, *V. vulgaris*) and seven social bees (*Bombus lucorum*, *B. terrestris*, *B. lapidarius*, *B. pratorum*, *B. pascuorum*, *Psithyrus campestris*, *Apis mellifera*). On each visit a list was made of all the solitary species that could be found. The social species were only noted from time to time and the sex or caste of each species was recorded. Nomenclature is according to Kloet and Hincks (1978).

TABLE 1  
The number of species of solitary wasps and bees recorded per month and new species seen  
each month at Pompocali, near Leeds

	April	May	June	July	August	September
No. of spp.	5	19	27	31	14	7
No. of new spp.	5	15	11	15	4	2

More species were collected in June and July, although the months with the largest number of previously unrecorded species were May and July (Table 1). The May or spring peak was characterized by the mining bees *Andrena* and their cleptoparasites *Nomada*. In these genera the males generally emerged before the females and *Andrena* species before the *Nomada* species. *Nomada* species first emerged in the second week of May while *Andrena* species were present from the beginning of May and five species were found in April. The July or summer peak was characterized by the appearance of the solitary wasps and the mining bees *Lasioglossum* with their cleptoparasites *Specodes* although some species of these groups appeared in June and two species, *L. fratellum* and *L. rufitarse* were present at the end of May. Fertilized females of *Lasioglossum* and *Sphecodes* appeared first, with the males and a second brood of females appearing in August. The genus *Andrena* with the largest number of species (17) with its cleptoparasite genus *Nomada* (nine species) also had species appearing for the first time in June. The bee *Colletes succinctus*, which requires heather flowers as a food source, appeared during July and its cleptoparasite *Epeorus cruciger* during August.

TABLE 2  
**The number of days on which each species of solitary wasp and bee was recorded at  
Pompocali, near Leeds**

No. days		No. species
<b>A — Unusual species</b>		
1	<i>Myrmosa atra, Crossocerus wesmaeli, Psen equestris, Nysson spinosus, Andrena helvola, A. lapponica, A. tarsata, A. subopaca, Halictus rubicundus, Lasioglossum cupromicans, L. smethmanellus, Sphecodes ferruginatus, S. hyalinatus, S. monilicornis, Epeolus cruciger.</i>	15
2	<i>Psen dahlbomi, Andrena bicolor, A. angustior, A. fuscipes, A. humilis, Lasioglossum leucopum, Nomada lathburiana.</i>	7
3	<i>Priocnemis parvula, Arachnospila anceps, Crossocerus tarsatus, Colletes succinctus, Andrena clarkella, A. fucata, A. chrysosceles, A. saundersella, Lasioglossum albipes, Nomada panzeri.</i>	10
<b>B — Common species</b>		
4	<i>Sphecodes gibbus.</i>	1
5	<i>Sphecodes fasciatus, Nomada fabriciana, N. ruficornis.</i>	3
6	<i>Andrena fulva, A. jacobi, A. nigroaenea, A. haemorrhoa, Nomada marshamella.</i>	5
7	<i>Tachysphex pompiliformis, Mellinus arvensis, Andrena wilkella, Nomada flavoguttata, N. rufipes.</i>	5
8	<i>Crossocerus quadrimaculatus, Andrena cineraria, Nomada goodeniana.</i>	3
9	<i>Lasioglossum fratellum.</i>	1
10	<i>Nomada striata.</i>	1
12	<i>Lasioglossum rufitarse.</i>	1

Three times as many females (165) were taken as males (55) of the solitary species, because males are on the wing for a shorter period of time than the females. The process of nest building and food collection or the cleptoparasitic habit of finding a host nest in which to force an entry to lay eggs are entirely female occupations and are more time-consuming than the main occupation of the males, which is to locate females for copulation.

The frequency with which species are recorded can be clearly divided into two groups, the group of 20 common species which were recorded on four to 12 days each and the group of 32 unusual species which were recorded on one to three days each (Table 2). The large group of unusual species (61.5% of the solitary species) is also evident in the calculation that the chances of finding the same species on any two consecutive visiting days was only 27.4%. The chances of finding the same species on any two of three consecutive visiting days increases to 37.9% and on any two of four consecutive days to 45.5%. Thus even at four consecutive days the odds are only nearly even on finding any one particular species on more than one day. These analyses would seem to indicate that further visits to the site should be rewarding in terms of finding previously unrecorded species. The presence of so many unusual species could be a consequence of the small size of the site so that few individuals of a species nest there, or the site might in some way be suitable so as to attract a few individuals of species dispersing from elsewhere.

The species of solitary wasps and bees can be separated into four categories with regard to their feeding habits: (a) the predators or solitary wasps which collect insect prey to store in cells as food for their offspring, e.g. *Tachysphex pompiliformis* hunts acridid

grasshoppers, *Crossocerus quadrimaculatus* hunts mainly small diptera, *Mellinus arvensis* hunts larger diptera, mainly Muscidae; (b) the pollen and nectar feeders or solitary bees which collect these resources to store in cells as food for their offspring; (c) the wasp and (d) bee cleptoparasites which use wasps and bees as hosts (Table 3). The solitary wasp species and their cleptoparasites are less numerous than the solitary bee species and their cleptoparasites. The number of cleptoparasitic species are relatively less numerous than their hosts in the common and unusual wasp groups and in the unusual bee group but are equally numerous in the common bee group. These relationships probably exist because the number of individuals per species is smaller in the wasp group compared with the bee group and in the unusual group compared with the common group and thus the respective species are less or more likely to be found. Although data to support this hypothesis was not specifically collected, it can be supported by casual observations. Thus several individuals of a species of *Andrena* bee, a member of the common group, could often be collected in one sweep of the net. These analyses would seem to indicate that if new species are recorded from this site, they are more likely to be further unusual species or solitary wasps.

TABLE 3  
The division by feeding habits of the common and unusual groups of solitary wasps and bees at Pompocali, near Leeds

	Common	Unusual	Total
<b>Solitary Wasps:</b>			
Predators	3	6	9
Cleptoparasites	0	2	2
<b>Solitary Bees:</b>			
Pollen & Nectar Feeders	8	18	26
Cleptoparasites	9	6	15

All the solitary wasps and bees nested in the soil except for the wasp *Psen dahlbomi*, which was found nesting in beetle holes in a branch of dead wood lying on the ground. The many old dead tree stumps did not have nesting species. The relative absence of solitary wasps and the total absence of megachilid bees (i.e. leaf-cutting and mason bees) can be largely accounted for by the apparent lack of dead wood which might be suitable as nesting sites.

Most of the species found are common and widespread throughout most of England. However, *Lasioglossum fratellum* is recorded from the north and west of England, *L. rufitarse* from the north of England and west midlands and *L. cupromicans* and *L. smethmanellum* are a species pair with the former probably mainly present in the north and west of England and the latter in the south and east but there is a large overlap in distribution. Several of the species are local in that they are largely restricted to dry sandy areas and thus are indicators of such habitats: *Tachysphex pompiliformis*, *Psen equestris*, *Colletes succinctus* and its cleptoparasites *Epeorus cruciger*, *Andrena lapponica*, *A. fuscipes* and its cleptoparasite *Nomada rufipes* and *A. tarsata*. Three species found are rather rare in Yorkshire: *A. helvola* is about the seventh record for Yorkshire, *Psen dahlbomi* the fourth and *A. humilis* the second.

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## BOOK REVIEWS

**Wetland Ecology** by John R. Etherington. Pp. 66, including numerous line drawings, diagrams and plates. Studies in Biology No. 154, Edward Arnold. 1983. £2.75.

Wetland Ecology is one of the very interesting habitat studies in the series. Examples of the habitat that exists at the junction between terrestrial and aquatic habitats are drawn from across the globe. The anatomical, morphological and physiological adaptations to this habitat are examined and the problems of nutrient cycling and availability discussed. Particular attention is paid to the conservation and management of these areas and there are ideas for both field and laboratory based practical work. Wetlands are a particularly interesting habitat for syllabuses requiring students to study a habitat in detail and this volume should therefore be of interest.

JEPC

**Ecological Flora of the Shropshire Region** by C. A. Sinker, J. R. Packham, I. C. Trueman, P. H. Oswald, F. H. Perring and W. V. Prestwood. Pp. xvi + 344. Maps and diagrams in black-and-white; eight colour plates by Anne Gilbert and chapter headings by Lindsay Brown. Shropshire Trust for Nature Conservation, Shrewsbury, 1985. £23.00.

County floras used to be modest sized books, convenient on the bookshelf, and often handy in the pocket. They usually had an account of the geology of the county, a 'botanologia' (notes on observers of the flora of the county from earliest times to the present), and then the essential matter — a list of the species found, with notes on their occurrence, past and present. The reader was left to draw his own conclusions — historical, biogeographical, ecological, and so on. This book is in the new style and fashion. It is 300 mm × 210 mm, and 30 mm thick. The flora itself, even though it includes a dot map for most species, occupies only 150 pages — considerably less than half the book. The reader has all his conclusions drawn for him in exhaustive detail; there are lengthy chapters on habitats and plant communities, and others on 'the environmental background', biogeographical elements, ecological change and conservation. There are a dozen dot maps showing various aspects of geology and soils, old grasslands, old woodlands, rivers and other bodies of water, railways and geographical subdivisions, which are also reproduced on a transparent overlay; there are eight aerial photographs, and many other illustrations (including some very ordinary colour studies intended to show the commoner flowers of different habitats, which might well have been omitted); and there is a botanologia (entitled 'history of botanical recording'), a full account of the survey which ran from 1970 to 1983, with a description of the organization and methods, and a group photograph showing more than fifty of the people who took part in it. The area covered by the flora is not the County of Shropshire, but a rectangle (with projections, making it a 34-sided figure) extending considerably into Montgomeryshire and less so into Staffordshire. As the county boundary is shown on the dot maps, the authors hope to get the best of both the grid-square and vice-county systems, while at the same time including some botanically interesting areas in Wales along the border. As David Bellamy says in a brief Foreword, the book 'puts the botanical heritage (of Shropshire) on permanent record' (and it does so very thoroughly indeed; and he points out astutely that the reasons underlying this 'overkill' (though he doesn't call it that) are that the county contains some famous and long-established schools, a field centre that was the head office of the Field Studies Council, and the regional office of the Nature Conservancy Council.

FHB

**WILDFOWL MOVEMENTS IN YORKSHIRE AND LINCOLNSHIRE AND  
ELSEWHERE ALONG THE EAST COAST OF BRITAIN, OCTOBER 24th TO  
NOVEMBER 7th 1982 — AN ANALYSIS AND COMPARISON WITH  
PREVIOUS LATE AUTUMN MOVEMENTS RECORDED AT SPURN BIRD  
OBSERVATORY**

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**INTRODUCTION**

Observers fortunate enough to have been at Spurn during the late autumn of 1982 will long remember the impressive passage of wildfowl, with in excess of 10,000 ducks, geese and swans counted during the last few days of October and the first week of November. The majority of the movement took place on just three days, 29th October and 5th and 6th November. The sea-watching coverage was near complete on all three days.

Considering the unprecedented numbers involved at Spurn, it was decided to attempt to collate and interpret those recorded at other coastal sites during the same two-week period. With this in mind, observers from a wide spread of watch-points were contacted and requested to forward information concerning numbers and directions of moving wildfowl, weather conditions, times of watches, and also a comment as to how the numbers involved in the review period compared with previously noted movements.

It soon became clear that the movement was one of unprecedented size all along the east coast of England from Flamborough Head south. In addition, there had been a well-marked influx of wildfowl into parts of South and West Yorkshire around 6th November, clearly connected with the coastal movement.

**TREATMENT OF INFORMATION RECEIVED**

The movement witnessed from the Yorkshire coast has to be looked at as part of a much larger one along the south-west part of the North Sea. The analysis concentrates on the movements seen from the historical counties of Yorkshire and Lincolnshire, ie North Yorkshire, Humberside, and Lincolnshire using the modern boundaries. Records from inland Yorkshire are added or incorporated with the coastal records as appropriate and those from further north or south are included to show how the Yorkshire and Lincolnshire movement fits into the overall picture.

The numbers of birds involved in the movement of each species off the Yorkshire and Lincolnshire coasts and also those inland in Yorkshire have been estimated separately and are given for each species. The totals have been assessed so as to avoid any duplication and are therefore quite likely to be lower than the actual case.

Very little information was received concerning the last week in October, with Spurn being the only site with more than a few hours of coverage. Details were received from Peterhead (Aberdeenshire), Seaton Sluice and other Tyne and Wear sites, Filey Brigg (North Yorkshire), Flamborough Head and Barmston, as well as Spurn (North Humberside), Donna Nook and the Witham Mouth (Lincolnshire) and Dungeness (Kent).

The November period was, in comparison, well covered at all the above sites and at several others: Holme and Yarmouth (Norfolk), Lowestoft and Minsmere (Suffolk), and Allhallows, Foreness, St. Margaret's and Sandwich Bay (Kent). The periods of coverage on the three main days for the main sites, together with the total of wildfowl recorded on each occasion, are given in Table 1.

Watch-points further west along the Channel, eg Portland Bill, and those in both west and north Britain, and Ireland, reported a widespread lack of any significant wildfowl passage in the period. Similarly, contacts on the continental North Sea coasts knew of no unusual movements; the Dutch Sea-watching Group reported a usual passage of sea duck but very low numbers of surface-feeders.

TABLE 1  
Periods of observation and numbers of wildfowl recorded at selected sites, 29th October  
and 5th–6th November 1982

Site	29th October		5th November		6th November	
	Periods	Wildfowl recorded	Periods	Wildfowl recorded	Periods	Wildfowl recorded
Peterhead, Aberdeen	0644–0744 1540–1610	56	0653–0753	168	0701–1031	360
Filey Brigg, North Yorks	0815–1145	775	—	—	0830–1230 1500–1600	912
Flamborough, Humberside	1000–1230	578	0750–0920 1400–1430 1525–1610	1,066	0715–1210 1400–1540	1,826
Barmston, Humberside	?	299	1240–1420	1,277	0845–1130	818
Spurn, Humberside	0620–1645	3,700	0715–1545	4,116	0700–1310	1,528
Yarmouth, Norfolk	—	—	1030–1130	15,000	0730–1030	2,785
Minsmere, Suffolk	—	—	0730–0830 1030–1200 1400–1600	13,757	1330–1600	2,461
St. Margaret's, Kent	—	—	—	—	0700–1500	2,812

All times are given as GMT.

#### SPECIES ACCOUNTS

##### Bewick's Swan (*Cygnus columbianus*)

Yorks/Lincs coast	23
Inland Yorks	200+

There were no records in late October, and coastal records off northern watch-points remained scarce in November. Ten on the Humber at Spurn on 5th left to the south-west, and on the same day parties of five and six flew south past Cleethorpes and Donna Nook. Two flew south at Spurn on 8th. In contrast, quite large numbers were seen passing west along the north Norfolk coast at Holme, with a total of 142 between 5th and 7th, including 93 on 6th. None was seen off the Suffolk coast until nine flew south at Felixstowe on 7th. There were no records at all from Kent.

Records inland in Yorkshire showed a strong correlation with the Norfolk birds. After five at Pugney's (nr. Wakefield) on 5th several large flocks were seen on 6th: 28 flew south-east from Blackmoorfoot Reservoir (Huddersfield), 33 at Broomhead Reservoir, 22 south-west over Strines Reservoir, 12 at Pugney's, 45 south-west over Wintersett Reservoir, and two at Thrybergh Reservoir. A total of at least 62 more were noted over the next two days, but there was obvious duplication of records because of birds moving between sites.

**Whooper Swan (*Cygnus cygnus*)**

Yorks/Lincs coast	17
Inland Yorks	30

19 flew south at Hauxley (Northumberland) on 24th October, 16 north at Barmston on 6th November, and one south at Donna Nook on 9th. Inland, seven flew south over Leeds on 1st November, four were at Thrybergh Res. and 16 at Swillington Ings on 6th, and three at Pugney's on 7th. 16 at Bretton Park on 9th may have been the same as those at Swillington (and also Barmston?) on 6th.

**Bean Goose (*Anser fabalis*)**

Yorks/Lincs coast	6
Inland Yorks	0

Six flew south at Kilnsea on 25th October. Another, or possibly the same, six flew south past Yarmouth (Norfolk) on 29th. 22 grey geese that flew south at Barmston on 5th November were probably this species.

**Pink-footed Goose (*Anser brachyrhynchus*)**

Yorks/Lincs coast	(78)
Inland Yorks	4

One inland at Fairburn Ings on 6th November, followed by three on 7th. No coastal records in the main period, but 30 south at Spurn on 9th November, and 48 south-west there on 10th.

**White-fronted Goose (*Anser albifrons*)**

Yorks/Lincs coast	4
Inland Yorks	0

One flew north at Spurn on 25th October, a day when 130 passed west at Dungeness. Three flew south-west at Spurn on 6th November, when seven went west at St. Margaret's, Kent, and two flocks, of 70 and 44, flew south over Essex. The only other record was of one west at Holme on 4th.

**Greylag Goose (*Anser anser*)**

Yorks/Lincs coast	53+
Inland Yorks	3

One south at Flamborough on 29th October, then 45 south at Filey Brigg and seven south at Spurn on 30th. Several flocks seen feeding on the Lincs. coast around this time. Inland, two flew west at Hall Dike Reservoir on 27th and one was at Ringstone Edge on 30th, both sites being in the Huddersfield area.

**Canada Goose (*Branta canadensis*)**

Yorks/Lincs coast	1
Inland Yorks	-

One south at Filey Brigg on 5th November.

**Brent Goose (*Branta bernicla*)**

Yorks/Lincs coast	c. 880
Inland Yorks	4

103 flew south at Spurn on 29th October, and 21 on 30th. The only other northern report in October was of eight south at Flamborough on 29th, but there was quite a marked movement in Kent around the 23rd.

Three flew south at Barmston and one west, up the Humber, at New Holland on 3rd November.

On 4th, 20 flew south at Spurn but in comparison 600 passed Felixstowe in just 30 minutes and fishermen there reported 'black geese' passing in flocks all day.

5th November produced widespread record counts of passing birds, including 567 south at Spurn where the main movement extended from mid-morning through until late

afternoon. 147 passed south at Flamborough, and 130 at Barmston. 45 flew west up the Humber past Goxhill. The movement witnessed off Norfolk was on a much larger scale, with at least 15,000 south past Suffolk and 1,100 west at Holme. Observations from a helicopter 35 miles north-east of Cromer showed many large flocks heading SSW, even at 0630 hours, well before any were seen off Spurn. An observer at Yarmouth could see birds coming in from the north-east and then turning to fly in both directions as they approached the shore. He counted 14,500 moving south in just one hour. A total of about 50,000 has been suggested for the Norfolk movement, but there were regrettably no other watches to supplement the Yarmouth one. The 15,000 past Suffolk was, on the other hand, an actual count and does not include a total of four hours when birds would certainly have been passing.

Comparatively small numbers passed on the 6th, with peaks along the Yorkshire coast of 47 south at Flamborough and 34 south and ten north at Spurn. Numbers off Lincolnshire were somewhat higher, with 100 south off Huttoft as an example, and this could suggest movement out of the Humber. Further south 1854 passed Yarmouth and the total passing Suffolk was assessed at 5,000+. There were again birds moving west at Holme, 200. In Kent, 950 flew west at Northward Hill, heading up the Thames, and 319 south at St. Margaret's; in addition to the coastal records there was a marked overland passage in west and central Kent, involving about 2,450 birds. Even so, the 20,000+ already past Suffolk must obviously in the main have landed — quite possibly in the Foulness (Essex) area, where 40,000 were later counted.

The pattern of movement on the 7th was largely similar, with 15 south at Spurn contrasting with 77 across the Humber at Donna Nook and 252 at Saltfleetby, Lincs. 32 went west at Holme, 325 south past Suffolk and 102 south at St. Margaret's.

There were two inland Yorkshire records, one at Thrybergh on 6th and three at Pugney's on 7th.

No dark-bellied birds at all were seen from Peterhead, Aberdeenshire, and the only ones reported anywhere north of Yorkshire were 12 north at St. Mary's Island, Northumberland, on 6th, showing clearly that the movement was limited to the southern part of the North Sea.

The only pale-bellied birds reported were two south at Flamborough on 7th and 25 south at Peterhead the previous day.

#### **Red-breasted Goose (*Branta ruficollis*)**

None was seen off Yorks/Lincs but one flew south with Brents at Yarmouth on 5th November.

#### **Shelduck (*Tadorna tadorna*)**

Yorks/Lincs coast	775+
Inland Yorks	4

Numbers passing south at Spurn included 256 on 29th and 91 on 30th October, 207 on 5th and 176 on 6th November, and smaller numbers on most other dates, a total of 759. Smaller counts were obtained at other local sites, including 167 south at Flamborough on 6th November, a record there. Further afield, a total of 51 flew north as well as 58 south off the Northumberland coast on 6th and 7th, and there was a marked westward movement at Holme, with 300 on 5th, 200 on 6th, and 38 on 7th. 400 passed south off Suffolk over the same three days, including 250 on 6th. 17 west at Dungeness on 6th was the only Kent record, and only seven passed Peterhead in the period under consideration.

Inland, there were singles at Ingbirchworth (Huddersfield) from 4th to 7th and at Eccep Res., Swillington Ings, and Ringstone Edge (two) all on 7th.

#### **Wigeon (*Anas penelope*)**

Yorks/Lincs coast	1,650+
Inland Yorks	102+

A total of 834 were counted at Spurn between 29th and 31st October, with 170 of them flying in from the north-east and the rest passing south. The main day was the 29th, with 572 south and 120 'in'. Only 34 were seen at Flamborough on that date, all south, while at Filey Brigg there were 25 north and 45 south. A few days previously, on the 26th, 3,000 flew south at Gibraltar Point, Lincolnshire, while there was no significant movement reported from elsewhere.

In November at Spurn there were 15 south on 3rd, 67 south on 4th, and a total of 194 on 5th, including 132 'in'. The movement on 5th was noted all along the coast, with the main counts being 171 south at Flamborough, 350 west up the Humber at Goxhill (presumably connected with the incoming birds at Spurn), 1,600 west at Holme, 638 south at Minsmere, and 226 south at Sandwich Bay.

More large counts on 6th:- 123 south at Filey Brigg, 275 (a record) south at Flamborough, 212 south at Barmston, 253 south at Spurn, 181 south-east at Cleethorpes, 400 west at Holme, 850 south off Suffolk, 175 west at Allhallows, and 183 south at St. Margaret's. The movement further north was apparently less clear cut, as at Seaton Sluice 69 flew north and 75 south.

Smaller numbers passed on 7th, but still some noteworthy counts including 58 south at Barmston, 130 west at Holme, and 103 south off Suffolk.

Several sites inland in Yorkshire reported an arrival of birds, mainly on 6th and 7th. These included Thrybergh (three), Ingbirchworth (12), Pugney's (29), Eccup Res. (ten), Wintersett Res. (nine), Swillington (19), and Fairburn Ings (20+).

#### Gadwall (*Anas strepera*)

Yorks/Lincs coast	63+
Inland Yorks	14

At Spurn there were two south on 26th October, 39 south and six 'in' on 29th, but none on 31st, when two went south at Filey Brigg and one south at Barmston. Two south at both Spurn and Barmston on 5th November, then ten south at Filey Brigg, three south at Hornsea, and nine south at Spurn, all on 6th.

Inland there were three at Eccup Res. on 31st October, one at Ingbirchworth, one at Thrybergh on 5th November, and then four at Thrybergh and five at Wintersett on 6th.

Further afield there was one west at Holme on 4th November, five west at Foreness on 5th, 20 south past Suffolk and nine past St. Margaret's on 6th, and ten east at Foreness on 7th.

#### Teal (*Anas crecca*)

Yorks/Lincs coast	4,600+
Inland Yorks	49+

Small numbers, up to 23, passed south daily at Spurn between 24th and 28th October, then on 29th 1,388 went south and 17 came in from the north-east; further north on the same day there were 129 south at Filey Brigg and 105 south at Barmston. The major counts on 30th were 147 south at Barmston and 218 south plus six 'in' at Spurn. Numbers passing were then low until 30 south at Spurn on 4th November, followed by 1,676 on 5th, when 200 flew west up the Humber at Goxhill, 120 north and 288 south at Flamborough, and 250 south at Withernsea. On 6th there were 171 south at Filey Brigg, 351 north and 298 south at Flamborough, 213 south at Barmston, 181 south at Hornsea, and 457 south, 97 north and four 'in' at Spurn. Only small numbers passed on 7th, then 45 south at Spurn on 8th.

Arrivals inland would have been hard to detect, but Thrybergh, Wintersett, and Pugney's all reported small influxes of 16–17 birds on 6th and 7th, and Fairburn Ings had the autumn peak count at this time. There were two males of the nearctic race, the Green-winged Teal, on the Lower Derwent Ings on 7th and 8th, but these may be unconnected sightings.

Further afield, the only movement at Peterhead was ten south on 31st October and one south on 6th November. At Holme a total of 669 flew west between 4th and 7th, with 500

on 5th. 640 passed south off Suffolk between 5th and 7th. Main movements in Kent were 855 east at Allhallows and 102 south at St. Margaret's on 6th and then 34 west at Dungeness on 7th.

**Mallard (*Anas platyrhynchos*)**

Yorks/Lincs coast	1,275
Inland Yorks	?

Small numbers passed Spurn daily from 24th to 28th October, with a maximum of 23 south on 26th, on which date 1,000 passed south into the Wash at Gibraltar Point.

On 29th October 213 flew south at Filey Brigg, 100 south at Flamborough, and 143 south and nine 'in' at Spurn. Small numbers were then seen each day up to 4th November.

November 5th produced 256 south at Flamborough, 59 south at Withernsea, and 413 south plus 20 'in' at Spurn — record passage figures at all three sites. Then 16 north and 213 south at Flamborough on 6th, with 114 south at Barmston and similar numbers at both Hornsea and Spurn. At Donna Nook 135 flew north as well as 85 south, the north-bound birds presumably moved up the Humber as they were not seen off Spurn. 166 flew south at Barmston on 7th, with up to 59 at other Yorkshire sites but, very strangely, only one at Spurn.

This was the only surface-feeding duck seen in any numbers at Peterhead, with a total of 35 north and 61 south, mainly on 6th November. Further south 680 flew west at Holme between 5th and 7th, 99 south at Minsmere and 55 south at Sandwich Bay on 5th, 126 south at Yarmouth and 236 west at Dungeness on 6th, and 40 south off the Suffolk coast on 7th.

No influx was noticed inland in Yorkshire.

**Pintail (*Anas acuta*)**

Yorks/Lincs coast	170
Inland Yorks	21

A flock of 21 flew south at Spurn on 24th October. 22 south and 74 'in' there on 29th, but scarcely any records from elsewhere.

On 5th November ten went south and four 'in' at Spurn, three south at Flamborough, and ten south at Withernsea. Further south on this date there were 16 west at Holme, 258 south at Minsmere, and 62 west at Foreness. The maximum Yorks/Lincs count on 6th was 15 south at Donna Nook, but further south there were again larger numbers with 20 west at Holme, 92 south off Suffolk, 34 west at Allhallows, and 41 south at St. Margaret's. The movement off the Kent coast continued into the 7th, with 23 south at Sandwich Bay, but no more than three were seen from any site further north.

There was a small but clear influx inland in Yorkshire, with four at Tophill Low, parties of four and seven over Thrybergh, and several singles elsewhere, all on 6th and 7th.

**Shoveler (*Anas clypeata*)**

Yorks/Lincs coast	230
Inland Yorks	29+

An unprecedented movement of 182 south and four seen coming in at Spurn on 29th October, a day when 40 passed Flamborough and 42 Gibraltar Point. Ten flew south at Spurn on 30th and two on 31st.

On 5th November there were 20 south at Spurn and 53 south at Minsmere, but few were seen at other sites. The only large count on 6th was 48 south at St. Margaret's. Unlike most other species there was no westward movement in either Norfolk or Kent.

Possibly connected with the coastal movement was a party of 19 east over Pugney's on 6th, with five grounded there as well. Fairburn Ings had its peak autumn count, 187, also on 6th.

**Red-crested Pochard (*Netta rufina*)**

Yorks/Lincs coast	0
Inland Yorks	2

The only coastal record was of one east at Foreness on 6th November, but there were birds at Fairburn Ings on 31st October, Hornsea Mere on 6th November, and, in Lincolnshire, one at South Ferriby from 28th October.

**Pochard (*Aythya ferina*)**

Yorks/Lincs coast	745+
Inland Yorks	100+

25th October produced seven west at Spurn and 25 south at Gibraltar Point. Ten south at Spurn on 26th, then none until 29th, when there were 298 south at Flamborough and 293 south plus eight 'in' at Spurn; timings showed that at least 490 birds were involved at the two sites. Small numbers passed on 30th and 31st, and Flamborough had 57 south on 5th November followed by 34 south at Hornsea on 6th. Other sites recorded similar movements on these dates, with 40 passing Suffolk on 6th. 44 flew west at Holme, mainly on 6th, but few were observed from Kent sites.

Inland, Thrybergh recorded 46 new birds on 6th November, and a count at Ingbirchworth on the same day showed a considerable increase to 67. Numbers on Hornsea Mere totalled 638 on 9th.

**Ring-necked Duck (*Aythya collaris*)**

Yorks/Lincs coast	0
Inland Yorks	1

The regular wintering male arrived back at Tophill Low on 7th November, possibly just coincidentally.

**Tufted Duck (*Aythya fuligula*)**

Yorks/Lincs coast	205
Inland Yorks	35+

On 29th October 36 flew south at Filey Brigg, and 75 south plus 15 in from the north-east at Spurn. 13 south at Spurn on 30th, then very few recorded until 54 south there on 5th November. Small numbers south on 6th, maximum 19 at Filey Brigg. 15 flew west at Holme on 5th, and 58 south past Suffolk on 5th and 6th. 64 flew east at Foreness on 6th and 7th.

Inland, both Thrybergh and Pugney's reported new birds on 6th, 13 and 22 respectively.

**Scaup (*Aythya marila*)**

Yorks/Lincs coast	38
Inland Yorks	19

Seven south at Spurn on 26th October, and ten south on 29th. On 6th November 12 flew south at Hornsea and a different nine south at Spurn; on the same day 16 flew south at Yarmouth and one south off Kent, and inland one arrived at Pugney's, two at Blackmoorfoot, and 15 at Ingbirchworth. The following day one flew south at Spurn, one arrived at Thrybergh and seven flew south off Suffolk.

**Eider (*Somateria mollissima*)**

Yorks/Lincs coast	220
Inland Yorks	0

81 flew north and 17 south at Spurn between 24th and 30th October, including 32 north on 28th and 20 north on 29th.

None was then seen off Spurn until 5th November, when 28 went north at Flamborough and 80+ south at Yarmouth. Similarly on 6th only three north and four south at Spurn but 42 north at Flamborough, 120 west at Holme, 44 south at Yarmouth, 12 west at Allhallows, and 51 south at St. Margaret's. Five passed south at Spurn on 7th, with nine south at Donna Nook, and 20 north plus five south at Filey Brigg; further south there were eight west at Holme, 21 south off Suffolk, and 18 west at Dungeness.

874 flew north and 659 south at Peterhead during the period, with the main movements

south on 30th October and 4th November, and the largest movement north also on 4th November; there was however little correlation between these movements and those further south.

#### **Long-tailed Duck (*Clangula hyemalis*)**

Yorks/Lincs coast	15
Inland Yorks	2

Very small numbers were seen off either Filey Brigg, Flamborough, or Spurn on most days in the period, the maximum being just three south at Spurn on 26th October, with a total, from all sites, five north and ten south. Movement off Peterhead totalled 70 north and 56 south with a peak of 32 south on 7th November, a day when 16 were seen at Holme. Four passed Minsmere and four went east at Foreness between 5th and 7th.

Two arrived at Stearby, near York, on 27th October and one at Tophill Low on 9th November, just outside the main period. Later in the month up to eight were on Hornsea Mere.

#### **Common Scoter (*Melanitta nigra*)**

Yorks/Lincs coast	1,550+
Inland Yorks	4

A total of 271 flew south at Spurn between 24th and 31st October, with peaks of 83 on 29th and 64 on 30th. Elsewhere in Yorkshire there were only low numbers, except for 98 south at Barmston on 29th.

69 flew north at Spurn on 4th November, and then on 5th there were 87 north and 172 south at Spurn, only nine north and 13 south at Flamborough, but 200 west up the Humber at Goxhill. About 600 were on the sea off Barmston but most of these were probably unconnected with the movement elsewhere. 500 flew west at Holme, 1,212 south at Minsmere, and 1,021 east at Foreness. One arrived at Thrybergh Res.

On 6th, 179 south and 18 north at Spurn, but just across the Humber at Donna Nook there were 540 north, presumably moving west into the Humber. 171 north and 116 south at Flamborough, 750 west at Holme, 700 south at Minsmere, 1,072 east at Foreness and an overlapping count of 1,737 south at St. Margaret's. 526 north and 67 south off St. Mary's Island, Northumberland. One arrived at Pugney's.

On 7th, 59 south at Flamborough, two arrived at Blackmoorfoot Res., 30 west at Holme, 36 south off Suffolk, and 285 south off St. Margaret's.

#### **Velvet Scoter (*Melanitta fusca*)**

Yorks/Lincs coast	27
Inland Yorks	0

Four south at Spurn on 29th October, one south at Gibraltar Point on 31st, then seven south at Filey Brigg and two south at Spurn on 1st November and one south at Flamborough on 3rd. 12 south at Filey and one to two at other sites on 6th, and one south at Filey on 7th.

Larger numbers passed further south. Five west at Dungeness on 25th October, 21 south at Minsmere and 101 east at Foreness on 5th November, 18 south off Suffolk and 111 east at Foreness, continuing round past the Channel sites, on 6th. Three south at The Naze, Essex, and 25 east at Foreness on 7th. Just two north and four south at Peterhead in the period.

#### **Goldeneye (*Bucephala clangula*)**

Yorks/Lincs coast	390
Inland Yorks	230+

23 south at Barmston and 11 south at Spurn on 24th October; then a total of 21 south at Spurn to the month-end. One south at Flamborough on 3rd November, then 41 south and seven north on 5th, when there were 37 south and two 'in' at Spurn and rafts totalling 181 on the sea at Barmston; 156 flew south off Tynemouth, Tyne and Wear, in one hour.

Widespread reports on 6th, with 86 south and three north at Flamborough and 62 south, one north at Spurn being typical. Smaller numbers on 7th, maximum two north and 23 south at Filey Brigg. Only one on 8th, south at Spurn.

There was movement west at Holme, 24 on 5th and 15 on 6th, when 39 were seen at the Witham Mouth in the Wash. 42 south off Suffolk on 5th, then 19 on 6th and three on 7th. A total of only 11 passed the Kent sites.

This was the species for which there was the best tie-in with observations at Peterhead — five south on 29th October, 25 south and seven north on 5th November, 80 south and 20 north on 6th, and 25 south plus five north on 7th.

Inland, 11 were new at Thrybergh on 6th November, with 19 at Fairburn and 13 at Pugney's the same day. On 7th there were seven at Thrybergh, 17 at Pugney's, 12 at Swillington, and ten at Eccup. Nearer the coast 105 on Hornsea Mere on 6th seemed like newly arrived birds, as did 59 at Covenham Res. in Lincs on 7th.

#### **Smew (*Mergus albellus*)**

Yorks/Lincs coast	2
Inland Yorks	0

A male flew south at Flamborough and a female/immature south at Spurn, both on November 5th. Singles south off Suffolk and Kent on 6th.

#### **Red-breasted Merganser (*Mergus serrator*)**

Yorks/Lincs coast	85
Inland Yorks	16

18 flew south at Spurn between 24th and 30th October, with five south at Barmston on 29th and three north, two south at Filey Brigg the same day.

One south at Filey on 3rd November, and on 5th seven south at Spurn plus five west up the Humber at Goxhill. Many more were seen on 6th: 12 north and seven south at Filey, 16 north and five south at Flamborough, 11 south at Barmston, 14 south and one north at Spurn, and 11 north (into the Humber?) plus 15 south at Donna Nook. Nine flew south at Filey on 7th, but few elsewhere.

Ten west at Holme on 5th November and 30 on 6th, when 31 were at the Witham Mouth, and 26 on 7th. 119 south off Suffolk on 5th, 160 on 6th, and six on 7th. All Kent sites reported large numbers, mainly moving around into the Channel, with maxima of 113 south at St. Margaret's on 6th and 66 west at Foreness on 7th. A total of 17 north at Seaton Sluice on 6th and 7th.

Five inland records: one at Fairburn from 1st November and then five west over Pugney's, one down there, one at Wintersett, and eight at Blackmoorfoot, all on 6th.

#### **Goosander (*Mergus merganser*)**

Yorks/Lincs coast	20
Inland Yorks	9

Two south at Filey and three south at Spurn on 29th October. Two west up the Humber at Goxhill on 5th November. Three south at Flamborough on 6th, with one north and two south at Donna Nook. Four arrived at Thrybergh and four at Tophill Low. Nine flew east down the Humber at Barton and one was at Swillington on 7th. The only other record was 11 south off Suffolk on 6th November.

#### **SUMMARY OF RESULTS**

The overall picture is one of a very large movement of wildfowl, involving at least 28 species moving mainly south in the south-western part of the North Sea during the period 29th October to 7th November. Westward movements such as witnessed in the Humber, off north Norfolk and off north Kent indicate an east to west element in the direction of arrival of the majority of species, Shoveler being an exception. With some species, especially Brent Goose, there was an obvious arrival from the north-east; most of these incoming birds turned towards the south on reaching the coast, but on north and

north-east facing coasts such as north Norfolk and north Kent at least some were deflected west and even north-west, as in Lincolnshire.

Numbers off East Anglia and Kent clearly show that Yorkshire and Lincolnshire were really only on the northern edge of the main passage. It seems that birds were coming in from the sea on a broad front from northern England south to at least as far as Yarmouth, with the bulk turning south and reinforcing the flow of birds already coasting south from further north. Although there were several large counts from the Kent coast indicating onward movement into the Channel the major proportion of the birds passing Norfolk and Suffolk seem to have landed, or perhaps moved over land, as suggested by records of Brent Geese in western Kent.

Considering the numbers of birds moving west or coming in from the north-east it was not surprising to find so many inland records during the same period, and in fact most well-watched sites, Thrybergh Reservoir being a good example, recorded well-marked influxes including several species that are generally uncommon inland.

#### THE WEATHER AND ITS INFLUENCE ON THE MOVEMENT

Over 27th and 28th October the centre of a large anti-cyclone moved gradually north-east from the Channel area to become almost stationary over the Baltic Sea up until 7th November. This blocked the eastward movement of weather fronts coming in from the Atlantic and created a southerly or south-easterly air-flow through the southern North Sea. The winds were generally only light or moderate but strengthened to gale force on 7th. The three main passage days (29th October and 5th and 6th November) were all ones of mainly overcast and haze or mist. Satellite photographs showed eastern Europe to be relatively cloud free, with the main cloud band extending north-east across Britain.

There seems no obvious 'trigger' for the movement on 29th October, but that in early November could well be connected with a sharp drop in temperature in Scandinavia and the Baltic area from +4 to +7 at 0600 hr on 4th November to between -2 and -9 at the same time on 5th (temperatures in Centigrade). The combination of suddenly falling temperatures and clear conditions overhead may well have induced an exodus of wildfowl, moving generally south-west and gradually being drifted away from continental shores by the southerly and south-easterly winds. The birds would then encounter poor visibility over the southern North Sea, and on reaching the English east coast would quite likely follow it closely, producing the large scale coastal observations.

#### COMPARISON WITH PREVIOUS MOVEMENTS

The movement off Yorkshire was certainly unprecedented, and most other sites commented similarly, many recording record numbers of individual species as well as a large total. At Spurn, the site with the best coverage in the period and with an extensive series of records for comparison, the numbers of wildfowl moving far surpassed any previous movement; in fact the movement in the two week review period was greater than that in the whole of October and November in any of the years since 1970, and probably well before that date. Numbers of wildfowl of the major individual species passing south or 'coming in' at Spurn in October and November each year have been extracted from the Spurn Bird Observatory Logs for 1970 to 1982 and are presented in Table 2, alongside the total passage in the same category during the review period.

The table clearly shows that the wildfowl passage at Spurn during October and November 1982 far exceeded that in the previous twelve comparable periods; 1976 and 1980 both included noteworthy movements, but the numbers involved are far less than the 1982 counts. Considering just the Spurn data, it is seen that Brent Goose (772 compared with a previous peak of 255), Shelduck (854 compared with 314), Gadwall (58 with 13), Teal (4,930 with 1,070), Pintail (235 with 75), Shoveler (229 with 36), Pochard (504 with 114), Tufted Duck (303 with 94) and Goldeneye (176 with 171, itself an exceptional count) were the species for which the counts were the greatest compared to previous maxima. All are essentially freshwater or estuarine species. The numbers of 'sea-duck', ie Eider, Common and Velvet Scoter, Long-tailed Duck, and Red-breasted Merganser, were

TABLE 2  
October-November wildfowl movements (excluding northward) at Spurn Bird Observatory 1970-1982, with the total numbers seen along the Yorkshire/Lincolnshire coasts, 24th October to 7th November 1982

Species	October and November movements at Spurn									Yorks/Lines (Review period)	
	1970	1971	1972	1973	1974	1975	1976	1977	1978		
Brent Goose	11	56	108	22	31	132	255	23	28	84	66
Shelduck	44	90	183	222	31	26	314	247	118	72	107
Wigeon	195	131	707	441	206	263	1,290	555	272	566	844
Gadwall	—	2	3	—	—	—	13	6	2	—	1
Teal	108	336	955	535	84	298	1,070	590	289	745	797
Mallard	55	570	621	107	127	212	360	245	366	155	355
Pintail	23	23	22	19	44	7	75	45	51	21	46
Shoveler	—	8	1	—	—	9	19	11	36	2	9
Pochard	115	33	39	4	1	70	73	114	32	54	47
Tufted Duck	21	22	94	22	16	16	65	87	15	34	48
Scaup	2	7	39	35	8	—	119	52	17	56	21
Eider	—	39	16	8	13	10	52	65	6	12	53
Long-tailed Duck	1	—	4	12	—	12	5	4	3	7	6
Common Scoter	247	314	494	626	621	400	1,687	? ?	? ?	21	14
Velvet Scoter	14	2	15	12	2	18	109	8	16	18	20
Goldeneye	27	20	77	66	13	41	171	63	46	60	83
Red-breasted Merganser	12	—	8	26	3	21	70	20	7	31	33
Goosander	—	—	4	1	—	—	2	2	6	2	1

? = passage impossible to evaluate because of local movements.

unexceptional during the period, although there was a northward movement of Eider and Common Scoter not included in Table 2.

A large proportion of the major autumn wildfowl movements at Spurn and elsewhere have occurred during periods of southerly or south-easterly winds, not always strong ones, and poor visibility, often with overcast or drizzle, also seems a frequent factor. As already noted, these weather conditions were prevalent on each of the three main passage days in 1982.

#### SUMMARY

A total of at least 12,000 ducks, geese and swans was recorded along the coasts of Yorkshire and Lincolnshire during the period 24th October to 7th November 1982. The majority of the movement took place on 29th October and 5th and 6th November, and there was an associated influx of wildfowl into inland areas of Yorkshire around the last of these three dates.

The movement is analysed species by species and is compared with observations made elsewhere along the east coast of Britain. The number of each species recorded is also compared with late autumn movements recorded at Spurn Bird Observatory since 1970. Numbers of several species (Brent Goose, Shelduck, Gadwall, Teal, Pintail, Shoveler, Pochard, Tufted Duck) were well in excess of previous movements. The significance of wind and weather conditions in influencing coastal movements of wildfowl is briefly discussed.

#### ACKNOWLEDGEMENTS

I am particularly grateful to John Cudworth for his help and encouragement, for providing detailed notes on wildfowl at Spurn since 1970, and for reading and commenting on the first draft of this paper. Additionally, I am obviously indebted to the large number of observers, groups and local recorders that have provided the information on which this analysis is based: Filey Brigg Ornithological Group, Norfolk Ornithologists' Association, P. R. Allard, S. Bellinger, T. E. Bowley, D. Braithwaite, G. J. Brown, I. Buxton, G. P. Catley, J. E. Dale, D. L. Davenport, A. del Nevo, P. A. Doherty, T. W. Fairless, J. Fitzharris, I. Forsyth, S. Gale, A. Grieve, R. C. Hart, I. P. Hodgson, M. S. Hodgson, S. H. Holliday, J. Howard, M. Innes, S. Keightley, S. Lorand, M. May, S. McMinn, D. R. Moore, R. K. Norman, S. H. Piotrowski, D. Proctor, M. Rogers, P. Singleton, G. Smith, M. Tasker, M. Trubridge, M. Van Eerden and J. Ward.

#### BOOK REVIEW

**In Search of Birds: their haunts and habits** by J. Flegg. Pp. 152, illustrated. Blandford. 1983. £6.95.

It must be difficult these days for book producers to think up yet another popular general book on bird biology — one that differs significantly enough from a hundred others to be taken seriously by book-sellers and the public. Jim Flegg's book gives an impression that, in this case, neither author nor publishers have tried very hard. The author clearly likes birds, and has pulled together a low-key compendium on the kinds of birds you will find in estuaries, wetlands, farms, woodlands and what-have-you. The publishers clearly like publishing low-budget bird books, and have pulled together text, photographs and sketches to make a bland, mildly attractive package. This is no bad thing; many weekend bird-watchers keep up their interest on wet Saturday afternoons by reading about birds and their habitats, and here is a worthy, if uninspiring, book to keep them going. I can't see it competing with 'Match of the Day'. Both writing and illustrations are clear but unexciting; there are livelier ways of putting across most of the points the author makes, and there are no surprises.

## TWO NEW SPECIES OF MITES (ACARI: MESOSTIGMATA: ZERCONIDAE) FROM THE YORKSHIRE WOLDS, ENGLAND

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Twelve semi-natural chalk grasslands in the Yorkshire Wolds were compared for their wildlife conservation value on the basis of three groups of organisms, higher plants, beetles in the family Carabidae, and mites in the group Mesostigmata (Emerson, 1985). Amongst the Mesostigmata there was a number of species that had not previously been recorded for the British Isles, such as *Geholaspis hortorum* (Berlese), and there were also some apparently undescribed species. In the family Zerconidae, material of which was sent to Poland, there is one new species in the genus *Prozercon* Sellnick (1943) and one new species in the genus *Zercon* C. L. Koch (1836). In the description of the two species below the terminology follows Błaszak (1974, 1976).

### *Prozercon usheri* sp. nov.

*Description of holotype:* Female, length 330 µm, width 255 µm.

*Dorsal side:* (Fig. 1) Setae: On podonotum, in row *i* only seta *i1* plumose, remaining setae of row *i* short and smooth. Setae *z1*, *z2* and *s1*–*s5* short and smooth. Marginal setae *r2* and *r3* barbed; *r1*, *r4* and *r7* long and plumose; *r5* and *r6* plumose but shorter than *r1*, *r4* and *r7*. Podonal row *i* with six pairs of setae, *z* with two pairs, *s* with five pairs, and *r* with seven pairs. On opisthonotum, row *I* with setae *I1*–*I5* long and plumose, and the pair of *I6*, also plumose, separated by 60 µm. Setae *Z1*–*Z5* long and plumose, like *I1*–*I5*. In row *S* all setae plumose, setae *S2*–*S4* reaching the margin of opisthonotum. Margin of opisthonotum with nine pairs of setae, *R1*–*R5* short and barbed, *R6*–*R9* short and smooth. Lengths of setae of opisthonotum, and longitudinal distances between the insertion of setae in single rows, are given in Table 1.

Pores: On podonotum pores *po1* situated centrally beside the line connecting setae *s1* and *s2*; *po2* above line connecting setae *s3* and *i4*, but nearer seta *s3*; *po3* between setae *s4* and *s5*. On opisthonotum pore *Po1* situated anteroparaxially to insertion of seta *Z1*; *Po2* on the line connecting setae *S1* and *R2*; *Po3* situated in the middle of the line connecting setae *S3* and *Z4*.

Sculpture: Podonotum entirely covered with irregular tile-like sculpture. In upper part of opisthonotum sculpturing also delicate and tile-like; in the region of setae *Z1* to *Z3* there is a bright oval field; between rows of setae *I* and *Z*, nearer to *I*, there are distinct spots. Posterdorsal cavities more flattened than the typical Zerconid form, with axes parallel to body axis.

*Ventral side:* The posterolateral extremity of peritremal shield reaches to seta *R6*. Peritremal shield with two short and smooth setae, *p1* and *p2*, and lacking adgenital shields and openings of glands *gv2*. Anterior margin of ventroanal shield with one pair of setae.

*Systematic position:* The new species is related to species characterized by smooth setae *z1*, *i3* and *i6* on the podonotum. Nine pairs of marginal setae in row *R* is an exception among the known species of the genus *Prozercon*, which generally have only eight pairs of marginal setae. The new species is closely related to *Prozercon lutulentus* Halaskova (1963), from which it differs by the characters listed in Table 2.

*Type material:* Holotype female — Humberside, Towthorpe, Towthorpe Dale, national grid reference SE8963, grassland core, 28 September 1982, collected by R. M. Emerson; four paratypes (3 females, 1 nymph) with the same collection data. This species is named after Dr M. B. Usher, Department of Biology, University of York, England. Holotype and paratypes are deposited in the British Museum (Natural History), with registration numbers 1985.5.17.1 (holotype) and 1985.5.17.1-3 (paratypes).

TABLE 1

Lengths of setae on the opisthonotum of *Prozercon usheri* sp. nov. and *Zercon embersoni* sp. nov. The distances between the points of insertion of pairs of setae in the longitudinal rows are also given. The setae are shown in Figs. 1 and 2

Seta	<i>P. usheri</i>		<i>Z. embersoni</i>	
	Length (μm)	Separation (μm)	Length (μm)	Separation (μm)
S1	16	39	36	51
S2	22	26	52	51
S3	22	26	63	51
S4	22		69	
Z1	16	30	24	72
Z2	16	30	36	33
Z3	16	24	63	42
Z4	20	60	69	82
Z5	16		39	
I1	16	33	22	60
I2	16	24	36	39
I3	18	20	63	36
I4	20	27	63	30
I5	25	20	69	
I6	25		72	81

TABLE 2

A comparison of characters that can be used to separate *Prozercon usheri* sp. nov. from the closely related species, *P. lutulentus* Halaskova

Character	<i>P. usheri</i>	<i>P. lutulentus</i>
Seta <i>i2</i>	smooth	plumose
Setae <i>R2</i> to <i>R4</i>	barbed	smooth
Seta <i>S1</i>	plumose	smooth
Ratio lengths <i>S2/S1</i>	1 (<1.5)	approx. 2
Pore <i>Po1</i> in relation to insertion of seta <i>Z1</i>	anteroparaxial	anteroantiaxial

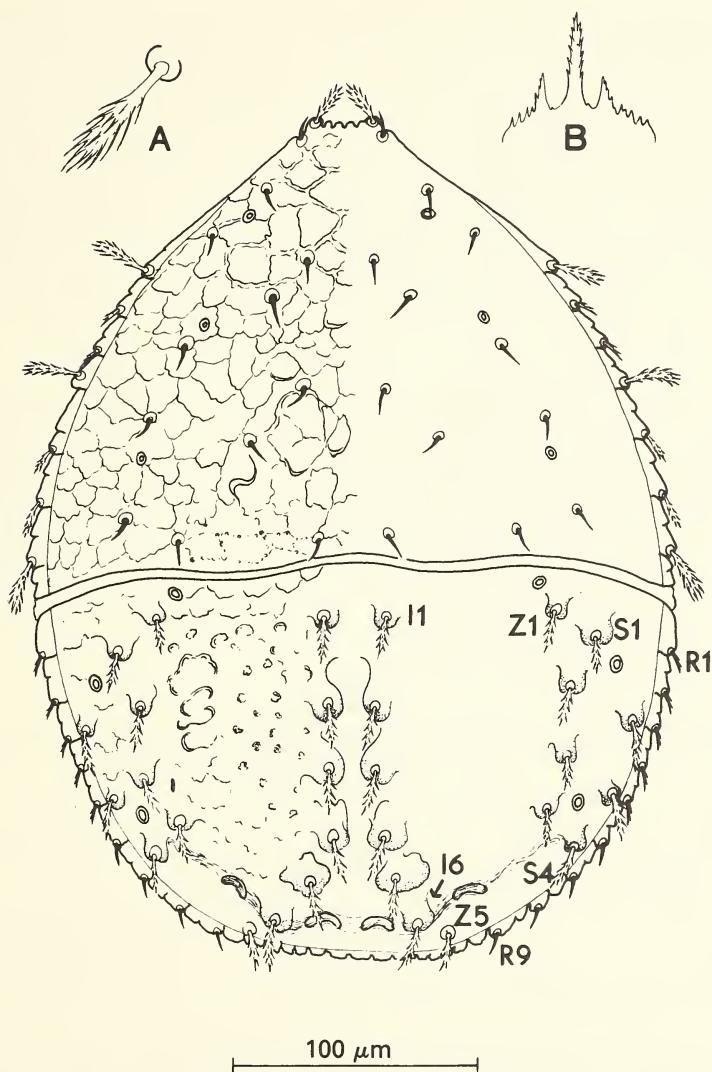


FIGURE 1

*Prozercon usheri* sp. nov., dorsum of female. Insets: A — seta  $R_4$ , and B — tectum.

*Description of holotype:* Female, length 450  $\mu\text{m}$ , width 350  $\mu\text{m}$ .

*Dorsal side:* (Fig. 2). Setae: On podonotum, only seta *i1* pilose, remaining setae of row *i* and all setae of rows *z* and *s* smooth. All marginal setae on podonotum delicately barbed. Podonotal row *i* with six pairs of setae, *z* with two pairs, *s* with six pairs, and *r* with six pairs. On opisthonotum, in row *I* seta *I1* smooth and short; *I2* longer, barbed, reaching the insertion of seta *I3*; *I3*–*I6* pilose with a hyaline sheath at the extremity, seta *I3* reaching the insertion seta *I5*, seta *I4* twice as long as distance to insertion of seta *I5*, and seta *I5* not reaching to the posterior margin of the opisthonotum; setae *I6* separated from each other by 141  $\mu\text{m}$ . Seta *Z1* short and smooth like *I1*; seta *Z2* longer, barbed like *I2*, and reaching to the insertion of seta *Z3*; setae *Z3* and *Z4* long, similar in shape to setae *I3*–*I6*, seta *Z3* extending beyond the insertion of seta *Z4*, and seta *Z4* reaching to the posterior margin of the opisthonotum; seta *Z5* shorter and barbed like seta *Z2*. In row *S* all setae with hyaline sheath, but seta *S1* almost half length of setae *S2*–*S4*. Margin of opisthonotum with seven pairs of barbed setae, like the marginal setae of the podonotum. Lengths of setae of opisthonotum, and longitudinal distances between the insertion of setae in single rows, are given in Table 1.

Pores: On podonotum pore *po1* situated in the centre of the line connecting setae *i2* and *s2*; *po2* under the line connecting setae *i4* and *s4*; *po3* on line connecting setae *s5* and *z2*, but nearer to *s5*. On opisthonotum pore *Po1* situated anteroparaxially to insertion of setae *Z1*; *Po2* on the line connecting setae *Z2* and *S2*, but nearer to *Z2*; *Po3* above line connecting setae *Z4* and *I5*; *Po4* behind seta *S4*.

Sculpture: Podonotum entirely covered with irregular tile-like sculpture except area near setae *i5*, *s4* and *z1*. The sculpture is tile-like in the upper corners of the opisthonotum, it is reticulated in the middle of the front part of the opisthonotum, and it disappears towards the posterior, which is smooth.

*Ventral side:* Chaetotaxy and shape of the peritremal shields typical of the genus *Zercon*. Anterior margin of ventroanal shield with four setae.

*Systematic position:* This species resembles *Zercon triangularis* C. L. Koch (1836), from which it differs by the characters listed in Table 3.

TABLE 3  
A comparison of characters that can be used to separate *Zercon embersoni* sp. nov. from the closely related species, *Z. triangularis* C. L. Koch

Character	<i>Z. embersoni</i>	<i>Z. triangularis</i>
Long setae of opisthonotum	with hyaline sheaths	without hyaline sheaths
Ratio lengths <i>I2/I1</i>	2 (>1.5)	1 (<1.5)
Seta <i>I2</i>	reaches insertion of seta <i>I3</i>	reaches only half way to insertion of <i>I3</i>
Seta <i>S1</i>	with hyaline sheath	without hyaline sheath

*Type material:* Holotype female — North Yorkshire, Foxholes, Cat Babbleton Farm, national grid reference SE9974, grassland core, 5 October 1982, collected by R. M. Emberson. Paratypes: one ♂, same collection data. One ♀, North Yorkshire, Butterwick, Butterwick Bank, national grid reference SE9970, grassland core, 5 October 1982, collected by R. M. Emberson. One ♀, Humberside, Sledmere, Crake Dale, national grid reference SE9165, grassland core, 18 October 1982, collected by R. M. Emberson. The species is named after Dr R. M. Emberson, Department of Entomology, Lincoln College, Canterbury, New Zealand. Holotype and paratypes are deposited in the British Museum

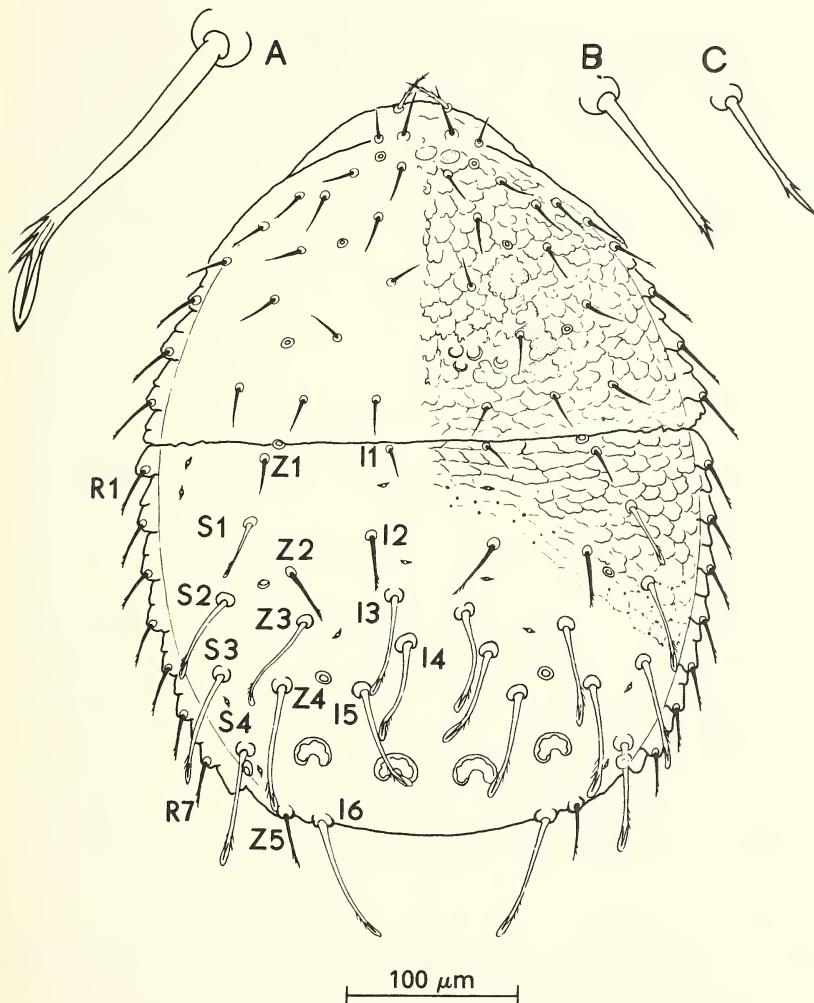


FIGURE 2

*Zercon embersoni* sp. nov., dorsum of female. Insets: A — seta *Z4*, B — seta *I2*, and C — seta *R1*.

(Natural History), with registration numbers 1985.5.17.4 (holotype) and 1985.5.17.4-8 (paratypes and nymphs).

#### ACKNOWLEDGEMENTS

I am grateful to Dr M. B. Usher, University of York, and to Dr R. M. Emberson, Lincoln College, Canterbury, New Zealand, for the material from the Yorkshire Wolds, England.

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## YORKSHIRE NATURALISTS' UNION EXCURSIONS IN 1984

compiled by

H. S. PELLANT and C. PELLANT

### ABERFORD (VC 64), 26 May (Mrs J. Payne)

About forty people, representing 15 Affiliated Societies, attended the excursion on a very dull morning, the vegetation damp, the light within Becca Banks so poor that it was an unrewarding visit for the entomologists.

After a picnic lunch, the main party drove to Stutton, crossing Cock Beck, walking via Seavy Carr Wood and Dalton Wood to the railway bridge over Cock Beck. They returned to Stutton along the public footpath, made difficult to follow by recent ploughing.

The party returned to Aberford Methodists' Room for tea, and at 5.00 p.m. the President, Mr. A. Norris, chaired the meeting for the presentation of reports. Mrs. H. Flint proposed a hearty vote of thanks to Mr. and Mrs. Fawcett of Becca Banks, Mr. Fielden and Mr. Smith of Grimston, Mr. and Mrs. Dennis for car parking facilities, and Mrs. J. Payne, the Divisional Secretary, for the arrangements.

### Ornithology (C. G. Shields)

At the end of May good numbers of most summer visitors are expected, but the Hirundines and Swifts were few. Collared Dove was in the vicinity of the village, and House Martins were observed visiting nests.

On Becca Banks, sloping woodland facing south, were two Blackcaps, Whitethroat, Garden Warbler, two Willow Warblers, Long-tailed Tit, Pheasant, Tawny Owl, two Great Spotted Woodpeckers, Tree Sparrow and Cuckoo, and a Starling was found freshly dead at a plucking post.

At Stutton, Seavy Carr Wood held at least five singing Blackcaps, with Chaffinch, Mistle Thrush, Mallard, Wood Pigeon, Willow Warbler and Chiffchaff. Bushes and trees along the old railway track had Willow Warbler, Greenfinch and two Grey Wagtails.

**Mammals and Other Vertebrates (C. G. Shields)**

A Carrion Crow was eating a road casualty Hedgehog on the old Great North Road just south of Aberford. On Becca Banks, there was evidence of Mole and Deer, and a Hare and Bullhead were seen near Stutton.

**Entomology (W. A. Ely)**

A cockchafer (*Melolontha melolontha*) was found on the main street of Aberford. At Becca Banks Mr. Denton found the leaf beetle *Batophila rubi*, the weevil *Apion pallipes*, Mrs. Bramley the gall of *Diastrophus rubi* distorting bramble twigs, and I collected the proctotrupid *Spilomicrus hemipterus*. During lunch in the village, Mr. Denton found several beetles in the farmyard, including *Corticeus bicolor* and *Caenoscelis subdeplanata* under bark and *Soronia grisea* on a turnip.

At Stutton I explored marsh and carr where the Cardinal Beetle *Pyrochroa serraticornis* was frequent; the weevil *Notaris acridulus*, the rove beetles *Eusphalerum minutum* and *Carpelimus rivularis*, and the water beetle *Hydraena nigrita* were also present. At Seavy Carr Wood Mr. Denton found the rove beetles *E. minutum* and *Siagonium quadricorne*, the weevils *Apion ervi* and *Magdalalis armigera*, the leaf beetles *Galerucella tenella* and *Aphthona nonstriata* and the tenebrionid *Isomira murina*.

**Flowering Plants and Ferns (D. R. Grant)**

The morning was spent at the old earthworks known as Becca Banks. Here a low, wooded escarpment of Magnesian Limestone cliffs runs down to Cock Beck, a tributary of the River Wharfe. This area has long been noted for some rarer calcicoles. At the beginning of the Banks were *Helleborus viridis* and *Actaea spicata*, with *Viola hirta*, *Ranunculus auricomus* and *Carex sylvatica* amongst the ground cover. A small marsh at the western end had *C. acutiformis*, *Scrophularia auriculata* and *Chrysosplenium oppositifolium*. On the wood margin were fine examples of *Euonymus europaeus*, and a few plants of *Atropa bella-donna* and *Campanula latifolia*. Turf at the top of the escarpment had *Origanum vulgare*, *Clinopodium vulgare* and *Calamagrostis epigejos*. A Walnut and Black Poplar in Aberford were no doubt planted many years ago.

The afternoon was spent around Stutton. Unfortunately some of the old Osier beds were being grubbed up and burned, and a section of the old railway and the adjacent sand quarry were being returned to agricultural use. The party followed the stream into Dalton Wood and some members visited the disused railway near Towton Bar. At the Stutton end, by Cock Beck, were large colonies of *Stellaria neglecta*. To the east of the bridge was a stand of *Populus canescens* and, growing up Osiers and fallen Willows, a large patch of *Humulus lupulus*. Main shrubs in the woods were *Thelycrania sanguinea*, *Rhamnus catharticus* and *Symporicarpus rivularis*. Along the woodland sides were more colonies of *Carex sylvatica*, *Campanula latifolia* and *Atropa bella-donna*.

The old railway near Towton had a large stand of *Astragalus glycyphyllos* and on the embankments *Primula veris*, *Centaurea scabiosa*, *Bromus erectus*, *Bryonia dioica* and *Prunus avium*.

**Mycology (A. Hawkswell)**

Persistent dry weather made fungi scarce and mainly in poor condition; exceptions were *Stereum hirsutum* and *Polyporus squamosus* at Stutton. Fifteen species were recorded: from Becca Banks, *Piptoporus betulinus*, *Auricularia auricula*, *Daedaleopsis confragosa*, *Xylaria hypoxylon* and *Flammulina velutipes*; from Stutton, *Stereum hirsutum*, *Calocera cornea*, *Polyporus squamosus*, *Pleurotus ostreatus*, *Coprinus plicatilis*, *Pluteus cervinus* and the rust fungi *Triphragmium ulmariae* on *Filipendula ulmaria*, *Puccinia sessilis* on *Allium ursinum*, and *P. punctiformis* on *Cirsium arvense*. The myxomycete *Lycogala epidendrum* was also noted.

**ELLAND (VC 63), 9 June (C. Shields)**

The area visited lies astride the River Calder between the towns of Elland and Brighouse. The river meanders from side to side of the valley and at Cromwell Bottom gravel pits have been worked, some water-filled, others drying out, thereby creating new habitats. The Calder and Hebble Canal shares the valley, and a disused portion of its earlier course is extant as Tag Cut. Some worked areas filled with pulverized fuel ash from the neighbouring power station are being slowly colonized by plants. Northern slopes of the valley include Elland Park Wood, Cromwell Wood and Freeman's Wood.

It was pleasing to see a large field attendance. The tea and meeting for reports were held at the Information Centre at North Dean Wood, Greetland, and the President, Mr. A. Norris, took the chair. Thanks were expressed for arrangements, mentioning Calderdale M.B.C. and their warden, Mr. P. Gray, for the use of the Centre, and Mr. Metcalfe for permission to visit Freeman's Wood.

**Ornithology (N. Carter)**

The gravel pits are well watched as one of only two areas of lowland open water in the Halifax district and sole site for some breeding species. Their position within a river valley is interesting during migration periods and during the winter months, when many upland reservoirs are frozen.

The morning session was spent around the gravel pits, including some of the Willow scrub. There were two sightings of Sparrowhawk, Whitethroat and Sedge Warbler were singing, and on the gravel pits, Coot and Great Crested Grebe were seen in the only breeding site for the latter in the Halifax area; Coot is known to breed at only one other site. At least 30 Lesser Black-backed Gulls were present, the tail-end of an unusually large spring passage; a Yellow Wagtail was unexpected.

During the afternoon session in Freeman's Wood a Great Spotted Woodpecker was seen. The total for the day was 34 species.

**Amphibia (C. Shields)**

Common Toads and Common Frogs were in several areas. Smooth Newts were quite common adjacent to canal and river.

**Conchology (Mrs. D. Shields)**

The gravel pits area was surveyed by the Conchological Section of the Union and the Halifax Scientific Society in October 1981. At that time, *Ferrisia wautieri*, a new species for Yorkshire, was found in the canal (*Naturalist* 107: 59–60, 1982). However, despite a long search, this tiny limpet was not refound.

Freeman's and Cromwell Woods produced twelve species, many usually associated with man and his rubbish. *Zonitoides excavatus* is found in several woods in this area and is restricted to non-calcareous soils.

**Lepidoptera (Mrs. J. Payne)**

Eleven butterfly species were recorded, the Orange Tip (*Anthocharis cardamines*), Common Blue (*Polyommatus icarus*) and Large Skipper (*Ochlodes venatus*), good for a western industrial valley. The site carries a large colony of Narrow-bordered Five-spot Burnet moths (*Zygaena lonicerae* subsp. *transferens*). A further eight species of 'macro' were recorded, notably Sandy Carpet (*Perizoma flavofasciata*) and Cream Wave (*Scopula lactata*). The afternoon walk yielded seven species of butterfly and a colony of Brown Silverline (*Lithina chlorosata*) on Bracken in Freeman's Wood.

The Clouded Yellow (*Colias crocea*) was reported to have bred at the gravel pits in 1983.

**Other Arthropods (D. T. Richardson)**

A relatively broad sweep of the area was made, but, unsurprisingly, considering the acid nature of the terrain and the long drought, few species came to light. Nevertheless, there

were five new 10 km square records: a woodlouse, *Philoscia muscorum*; millipedes, *Cylindroiulus punctatus*, *Glomeris marginata* and *Tachypodoiulus niger*, and a harvestman, *Nemastoma bimaculatum*.

#### **Flowering Plants and Ferns (D. R. Grant)**

In the morning, the riverside and the Tag Cut areas were examined. Extensive colonies of *Reynoutria japonica* on the banks of the River Calder and a single plant of *Heracleum mantegazzianum* were reported. In the river were several pondweeds: *Potamogeton natans*, *P. crispus*, and much *P. pectinatus*. Amongst the heaps of waste gravel and boiler ash were large colonies of *Vicia hirsuta* with *Geranium dissectum* and *Chenopodium bonus-henricus*. The old canal had *Typha latifolia*, a large amount of *Glyceria maxima*, and *Eriophorum angustifolium*, *Equisetum palustre* and *Oenanthe crocata*.

In the afternoon, the old gravel pit infilled with pulverized fuel ash was examined. Here was a stand of *Phragmites australis*, with *Lycopus europaeus* and many Orchids (probably *Dactylorhiza fuchsii*) under the Osiers, though many showed signs of hybrid vigour. The modern canal has *Acorus calamus* and *Alisma lanceolatum*. In one place introduced *Nymphoides peltata* is flourishing. The woods around here have *Lamiastrum galeobdolon*, *Milium effusum* and *Carex remota* in the damper parts. In Elland Park Wood is a good stand of *Carex pendula*.

#### **Threats (C. Shields)**

Although approval has been given to use the gravel pits for waste disposal and most of the area will be lost, several parts will be left undisturbed or made more suitable for wildlife. A large area has to be excavated to provide washland, giving the opportunity to create habitats compensating to some extent for losses. The brick-lined ponds in Freeman's Wood with their breeding amphibians are, happily, now protected from infilling by an agreement between Mr. Metcalfe and the Yorkshire Wildlife Trust.

#### **CAYDALE (VC 62), 24 June (Dr. M. A. Atherden)**

The late spring, combined with intermittent sunshine, meant the Caydale visit was less interesting than hoped from a zoological point of view. However, botanists were rewarded by wide variety, including such rarities as Clustered Bellflower, Columbine and Mountain Everlasting.

The valley of Caydale is cut into the Coralline Oolite plateau, with good exposures of the underlying Lower Calcareous Grit in quarries near the top of the valley sides. The lower parts are Oxford Clay with Kellaways Rock and some alluvium. Limestone grassland is developed on old quarries and in calcareous flushes lower down the slope. The invasion of hawthorn, which forms dense thickets in some parts, provides a scrub habitat, while near the stream there are interesting aquatic habitats.

In the morning limestone grasslands in the upper valley proved of particular interest. In the afternoon the party crossed the valley near Caydale Mill and divided; some proceeded down the valley through the deciduous woodland of Birk Bank and back via farmland on the plateau top, while the rest took a gentler route up the south side of the valley towards Old Byland. The only mammal signs were molehills and deer tracks. Common frogs and tadpoles and 24 species of molluscs were recorded.

#### **Ornithology (A. J. Wallis)**

This was a disappointing day in a well-wooded valley offering a good range of habitats, the tally totalling only 35 species with no surprises.

A single Kestrel and a Sparrowhawk were seen. Pheasant was sighted and a stray egg noted. Empty eggshells indicated a pair of Moorhen had nested in a marshy part of the valley. A pair of Lapwings had well-grown young, and a single Curlew flew down the valley. Wood Pigeons were recorded. One or two Swifts fed over higher ground, and Green and Great Spotted Woodpeckers, Skylarks, Swallows and House Martins were noted. Tree Pipit breeding was obvious, one pair with food waiting patiently while

naturalists passed. Pied Wagtail, Wren, Dunnock, Robin, Blackbird, Song Thrush, Whitethroat, Garden Warbler, Blackcap and Willow Warbler were listed. Goldcrest was heard in a conifer plantation and Spotted Flycatcher seen. A family of Blue Tits was encountered. Jay, Magpie and Rook were seen, a small flock of the latter feeding in a field newly mown, and a small group of Starlings in the same field were the only ones seen. Chaffinch and Greenfinch were observed, and a Redpoll called; Yellowhammer was the only bunting.

#### **Entomology (R. Crossley)**

The entomologists attending this meeting have diverse interests, and a lengthy species list was to be expected. Early indications are that Caydale, like so many other valleys in that area, has a rich and varied insect fauna with a number of species of localized distribution. Examples of the latter reported on the day are the beetles *Ischnomera sanguinicollis* and *Pyrochroa coccinea* (cardinal beetle), both associated with decaying timber. The strikingly marked longhorn beetle *Pogonoherus hispidulus* was found by Mr. Denton, who also reported the elm weevil *Magdalais armigera*. Dr. Archer noted 13 species of bees and wasps, and Mr. Stubbs, reporting on plant galls, commented that the limited variety of trees, coupled with a later than usual season for some species, had resulted in only 16 records. The striking black and red hopper *Cercopis vulnerata* was seen, and a younger member reported a Scorpion fly (*Panorpa* sp.).

Flies collected await identification, but field records included the soldier fly *Nemotelus nigrinus* and common hover flies *Pyrophaena granditarsa* and *Volucella pellucens*.

#### **Lepidoptera (Mrs. J. Payne)**

Caydale produced ten species of butterfly and 14 species of moth, the Common Blue (*Polyommatus icarus*), Large Skipper (*Ochlodes venatus*) and Dingy Skipper (*Erynnis tages*) least common. Six Geometrids were recorded, the Clouded Silver (*Bapta temerata*) female being an especially good find as it produced ova. The resulting larvae have been reared on blackthorn and entered the pupal stage. *Pyrausta aurata*, a crimson and gold 'micro' which feeds on marjoram and other labiates, was flying in the sun. Limestone slopes in Caydale hold great promise.

#### **Arachnology (C. J. Smith)**

Three hours of recording in Caydale yielded just over 30 species, some from grassland with scattered hawthorn, some from streamside, and some from wooded areas. Two species call for special mention: *Pachygynatha listeri* (male) and *Silometopus elegans* (female). Yorkshire records for the former are scattered throughout the county, but it is very local and mostly found at higher altitudes in the Pennines, Moors and Wolds. The latter species is also largely confined to the higher ground in the west and north of the county, but occasionally appears in lowland heath. Visits at other times of the year, and concentrating on other habitats, would greatly increase the number of records. Noticeably, no species were recorded for the Gnaphosidae, Thomisidae (crab spiders), Salticidae (jumping spiders) or Araneidae (orb-web spiders); and few species for the Lycosidae (wolf spiders) and Theridiidae.

#### **Flowering Plants and Ferns (Mrs. J. E. Duncan, I. C. Lawrence and B. Molesworth)**

The calcareous north-facing upper slope of Caydale was very interesting with *Scabiosa columbaria*, *Arenaria serpyllifolia*, *Plantago media*, *Koeleria macrantha*, *Linum catharticum*, *Lotus corniculatus*, *Lathyrus montanus*, *Pilosella officinarum*, *Thymus praecox*, *Alchemilla vestita*, *A. glabra* and *A. xanthochlora*, *Sanguisorba minor*, *Primula veris*, *Gymnadenia conopsea*, *Listera ovata*, *Dactylorhiza fuchsii*, *Avenula pratensis* and *A. pubescens*, *Briza media* and, perhaps the most interesting find of the day, *Antennaria dioica*.

On the lower parts of the slope hawthorns predominated, and beyond these more acidic terrain gave rise to *Galium saxatile*, *Polygala serpyllifolia* and *Vaccinium myrtillus*. The

bottom of the valley was very marshy with pockets of standing water, where *Pedicularis palustris*, *Valeriana dioica*, *Lychnis flos-cuculi*, *Dactylorhiza maculata*, *Pinguicula vulgaris*, *Iris pseudacorus*, *Caltha palustris* and other marsh-loving plants including several sedges grew.

On the south-facing slope, where members picnicked in sun, the terrain was very variable, mainly calcareous but overlaid by a more acid soil where the bracken encroached. However, such pleasing plants as *Aquilegia vulgaris*, *Campanula glomerata*, *Origanum vulgare*, *Helianthemum nummularium* and *Cynoglossum officinale* were seen. Farther along the valley towards Old Byland, *Arabis hirsuta* was found on a limestone outcrop with *Mycelis muralis*. Other plants of interest included *Eleocharis quinqueflora*, *Ophioglossum vulgatum*, *Blysmus compressus* and 11 *Carex* species. 207 plant species noted during the day included several new additions to the 10 km. square.

#### **ALLERTHORPE COMMON (VC 61), 30 June-1 July (B. S. Pashby)**

On a cool and somewhat overcast morning, members dispersed to various parts of the Wood and remnants of the Common. After lunch a very pleasant, sunny afternoon ensued. Sunday morning was similar but cloud returned in the afternoon. Other sites visited on Sunday were part of the nearby Pocklington Canal, the disused Pocklington airfield, and Millington Wood. On the second day we were joined by Mr. Clark, the Northern District Forester, and his daughter, both expressing a keen interest in the wildlife of the Wood and seeking advice on conserving it.

Arrangements for tea and the meeting for the presentation of reports in Pocklington School were made through Mr. R. J. Peel. The President took the chair and 14 members were present, although 33 had attended the excursion and 20 Societies were represented. Following the reports it was recommended that Mr. Clark be asked if it would be possible, when the Forestry Commission carries out essential work on the rides, to delay work as late in the season as practicable and for the edges of the rides to be left relatively undisturbed. (Subsequent correspondence from Mr. Clark indicated this advice had been followed.) Votes of thanks were expressed by Mr. Ely to Mr. Clark, Mr. Stubbins, Mr. Peel and the Divisional Secretary for their part in the excursion arrangements.

#### **Ornithology (B. S. Pashby)**

Of species long associated with the site, Green Woodpecker, Willow Tit and Tree Pipit were present, the latter on the more open heath to the north. Birds of prey were represented by Sparrow Hawk and Tawny Owl, warblers by Blackcap, Chiffchaff and Willow Warbler. Goldcrests were everywhere, and Coal and Long-tailed Tits were recorded. A Mallard's nest with eight eggs was found. 27 species were recorded.

#### **Reptiles and Amphibia (B. S. Pashby)**

Grass Snake, Adder and Frog were reported.

#### **Entomology (W. A. Ely)**

Allerthorpe Common, a classic Yorkshire entomological site until largely afforested after World War II, has been rather neglected in recent years. This is still a prime site: the broad rides and edges of the Common were alive with insects, particularly many bees and wasps yet to be determined.

The ponds on the Y.W.T. reserve had large numbers of Common Coenagrion and a few Emerald damselflies. Tiger beetles (*Cicindela campestris*) were present, and Mr. Kendal and Mr. Denton found the ground beetles *Bembidion doris* and *Pterostichus lepidus*; Mr. Denton also took *P. versicolor* and *Metabletus truncatellus*, while Mr. Kendal found *M. foveatus* and *Acupalpus dorsalis*. The water beetle *Agabus labiatus* was found in the reserve's ponds by Mr. Denton, and ponds in grassland east of the plantation had *Hydroporus pubescens*, *H. striola* and *H. gyllenhali*. Mr. Kendal took the tiny *Pselaphus heisei*, Mr. Denton found the dung beetle *Sphaeridium lunatum* on the main ride, and both found the Minotaur Beetle (*Typhaeus typhoeus*), which excavates a burrow to house

its brood and their supply of dung. The Field Chafer was sparsely distributed about the Common, and Mr. Denton found the tiny click beetle *Trixagus dermestoides* on the reserve. The scarce soldier beetle *Malthodes fuscus* was widely distributed, and single specimens of *M. pumilus* and *Malthinus sereipunctatus* were found. The large ladybirds *Neomysia oblongoguttata* and *Anatis ocellata* (the Eyed) were present on conifers and the tiny *Scymnus auritus* on oak. Mr. Kendal collected *Lagria hirta* and *Strangalia quadriplagiata*, one of the five longicorns seen. Mr. Kendal also found the leaf-beetles *Chrysomela populi*, *Phytodecta olivacea* and *Galerucella calmariensis*, and *Luperus longicornis* and *Altica oleracea* were collected. A good range of weevils was found, including the scarlet *Attelabus nitens*, whose leaf rolls on oak were abundant, *Rhynchites longiceps* and *Anthonus brunniipennis*. Mr. Denton collected *Byctiscus betulae* on the reserve and *Magdalisa carbonaria* on the main ride.

Most of the Diptera are still unidentified but the cranefly *Nephrotoma analis*, the gall-midge *Harmandia globuli*, which forms scarlet spheres on aspen leaves, and the acalypterate *Chamaemyia juncorum* were found. The latter, a northern species, was recorded from the Common at the beginning of the century.

The ichneumons *Tromatobia oculatoria* (a spider parasite) and *Trichomma enecator* (which attacks caterpillars in leaf rolls and is here near its northern limit in Britain) were collected, with the parasitic cynipid *Trybliographa gracilicornis* and the proctotrupid *Codrus donisthorpei*.

#### **Lepidoptera** (Mrs. J. Payne)

During the two day visit, and with the help of Mr. T. Upton, 14 butterfly and 20 moth species were recorded. Wherever there were sunny areas, with flowers, along the rides within the forest Small Heath (*Coenonympha pamphilus*), Common Blue (*Polyommatus icarus*) and Small Copper (*Lycaena phlaeas*) were found.

The Ringlet (*Aphantopus hyperantus*), Large Skipper (*Ochlodes venatus*) and Meadow Brown (*Maniola jurtina*) were all in good numbers near the Thornton Road junction. As the Brimstone butterfly (*Gonepteryx rhamni*) had been seen at Allerthorpe Common in spring, a search was made for ova and larvae on Alder Buckthorn, but none was found.

The Grass Wave (*Perconia strigillaria*) was flying in large numbers in a heathery clearing. The Cinnabar (*Callimorpha jacobaeae*) was seen, but not the rarer Clouded Buff (*Diacrisia sannio*), though it should still survive. The Bordered White (*Bupalus piniaria*), a pine feeder, was reported to be flying in 'swarms' and the Grey Pine Carpet (*Thera obeliscata*) was taken. The Small Yellow Wave (*Hydrelia flammeolaria*), an Allerthorpe speciality, was put up in the picnic area copse.

#### **Flowering Plants and Ferns** (Mrs. J. E. Duncan)

A note in the excursion circular for the field meeting at Barmby, Allerthorpe, Kildwick Percy and Warter on 7th September, 1893, reads: 'it is to be hoped that . . . considerable additions may be registered, thus contributing authentic records towards a future East Riding Flora'. These records would have been included in Robinson's Flora of 1902.

Now, more than 80 years later, the same hope holds good, since at the 1984 meeting in the same area records were requested by Miss Eva Crackles towards her work on a new East Riding Flora.

The main work over the two days was done in three tetrads.

Allerthorpe Common (tetrads 74 N and T): the ground was fairly dry but a number of species typical of the wet edges of the rides were found. These and other important species for the Common were: *Anagallis tenella*, *Calamagrostis canescens*, *C. epigejos*, *Carex pilulifera*, *Cirsium dissectum*, *Corydalis claviculata*, *Drosera rotundifolia*, *Epilobium palustre*, *Eupatorium cannabinum*, *Filago minima*, *Genista anglica*, *Hypericum hirsutum*, *H. humifusum*, *Listera ovata*, *Luzula pilosa*, *Ornithopus perpusillus*, *Pyrola minor*, *Scutellaria galericulata*, *Veronica scutellata*.

A previously underworked tetrad (74 Z) provided some waste ground beside agricultural land and the old airfield where a colourful border of flowers was a delightful sight.

Among the species recorded, which included some established aliens, were: *Amsinckia lycopooides*, *Anchusa arvensis*, *Carduus nutans*, *Descurainia sophia*, *Epilobium adenocaulon*, *Erodium cicutarium*, *Lamium amplexicaule*, *Lepidium campestre*, *Potentilla recta*, *Thlaspi arvense*.

A list made by the canal in tetrad 74 S included *Plantago media*, *Silaum silaus* and *Sparganium erectum*.

In Millington Woods (85 G) *Crepis biennis* was recorded and *Listera ovata* was found in quantity.

### THE BRYOPHYTE FLORA OF WEST LANCASHIRE: ADDITIONS AND DELETIONS

M. J. WIGGINTON

*Nature Conservancy Council, Northminster House, Peterborough*

In 1907 J. A. Wheldon and A. Wilson published a *Flora of West Lancashire* in which they provided accounts of vascular plants, bryophytes and lichens which occurred in the Watsonian vice-county 60. Addenda were published in 1925 in *The Lancashire and Cheshire Naturalist*. In the fifty or so years following the publication of the *Flora*, the bryophyte flora was much neglected and few records made. The British Bryological Society visited the vice-county during field meetings in 1955 and 1973, and the 1981 AGM was held in Lancaster. During the 1973 meeting a large number of records were made and sixteen species added to the vice-county list. Tetrad recording for a new Bryophyte Flora began in 1977, and since then, 43 taxa have been added. Recent examination of vouchers from the British Bryological Society and the J. A. Wheldon herbaria at the National Museum of Wales (NMW), and the A. Wilson herbarium at the Yorkshire Museum (YRK) has made necessary a few additions and deletions.

At the present time 542 taxa have been recorded in V.C. 60, comprising 125 spp + 4 vars of Liverworts, 25 spp + 1 var of *Sphagnum* and 360 spp + 27 vars of Mosses.

#### ADDITIONS TO THE BRYOPHYTE FLORA OF WEST LANCASHIRE (VC 60) SINCE 1907, INCLUDING REDETERMINED VOUCHERS

	first record recorder	date	number of post-1972 records
<b>LIVERWORTS</b>			
<i>Anastrepta orcadensis</i>	GWG	1957	5
<i>Calypogeia integriflora</i>	GWG	1955	9
<i>C. neesiana</i>	JAP	1973	5
<i>C. trichomanis</i>	MOH	1973	1
<i>Cephalozia macrostachya</i>	FEM	1935	1
<i>Cephaloziella rubella</i>	MJW	1978	7
<i>Fossumbronia husnotii</i> <sup>1</sup>	AW	1905	0
<i>F. wondraczekii</i> <sup>2</sup>	AW	1906	1
<i>Harpantnus scutatus</i>	HHK	1935	0
<i>Jamesoniella autumnalis</i>	MJW	1978	1
<i>Jungemannia atrovirens</i>	AW	1903	32
<i>J. paroica</i>	MOH	1973	1
<i>J. pumila</i>	JWF	1955	14
<i>Kurzia sylvatica</i>	JAP	1973	2
<i>Leiocolea badensis</i>	HCB	1912	4
<i>Lejeunea lamacerina</i>	HJBB	1968	9
<i>L. patens</i>	HJBB	1968	0
<i>Lophocolea fragrans</i>	DAR	1969	1

	first record recorder	date	number of post-1972 records
<i>Lophozia sudetica</i>	FEM	1937	2
<i>L. ventricosa</i> var. <i>silvicola</i>	MJW	1983	10
<i>Metzgeria fruticulosa</i>	MFVC	1973	3
<i>M. temperata</i>	ACC	1973	6
<i>Nardia geoscyphus</i>	MJW	1978	3
<i>Nowellia curvifolia</i>	JH	1967	28
<i>Pellia neesiana</i> <sup>3</sup>	JAP	1973	9
<i>Plagiochila britannica</i>	MJW	1978	1
<i>Ptilidium pulcherrimum</i>	TLB	1974	4
<i>Riccardia incurvata</i>	MJW	1978	2
<i>Scapania curta</i>	MJW	1983	1
<i>S. scandica</i>	MJW	1978	10
<i>S. umbrosa</i>	JWF	1955	6
<i>Tritomaria exsectiformis</i>	MJW	1978	7
<b>SPHAGNUM</b>			
<i>Sphagnum girgensohnii</i> <sup>4</sup>	JAW	1901	7
<b>MOSSES</b>			
<i>Amblystegium confervoides</i>	MJW	1978	3
<i>A. varium</i>	(CC1)	?	25
<i>Anomobryum julaceum</i> var. <i>concinnum</i>	MJW	1983	1
<i>Aphanorhagma patens</i>	HB	1915	3
<i>Bryoerythrophyllum ferruginascens</i>	TLB	1983	1
<i>Bryum bornholmense</i>	MJW	1978	18
<i>B. canariense</i>	JHGP	1955	0
<i>B. donianum</i>	MJW	1978	1
<i>B. dunense</i>	MJW	1978	8
<i>B. elegans</i>	JA	1973	4
<i>B. flaccidum</i> <sup>5</sup>	W & W	1899	19
<i>B. gemmiferum</i>	MJW	1978	14
<i>B. klinggraeffii</i>	TLB	1974	25
<i>B. rubens</i>	JA	1973	68
<i>B. ruderale</i>	MJW	1978	26
<i>B. sauteri</i>	MJW	1978	8
<i>B. subapiculatum</i>	MJW	1978	30
<i>B. torquescens</i>	MJW	1978	2
<i>B. violaceum</i>	MJW	1978	11
<i>Catoscopium nigritum</i>	GWG	1957	0
<i>Campylopus introflexus</i>	RP	1973	33
<i>Dichodontium flavescens</i> <sup>6</sup>	MJW	1978	1
<i>Dicranella subulata</i> <sup>7</sup>	? JN	1846	2
<i>D. staphylina</i>	JAP	1973	71
<i>Dicranum montanum</i>	MJW	1978	3
<i>D. scoticum</i>	(CC1)	?	0
<i>D. tauricum</i>	TLB	1973	6
<i>Didymodon acutus</i>	MJW	1978	2
<i>D. nicholsonii</i>	TLB	1974	4
<i>Distichium inclinatum</i>	MJW	1979	2
<i>Ditrichum cylindricum</i>	MJW	1978	47
<i>Entosthodon attenuatus</i>	WNB	1925	0
<i>E. fascicularis</i>	KMC	1978	1

	first record recorder	date	number of post-1972 records
<i>Eurhynchium striatum</i>	MJW	1978	5
<i>Fissidens celticus</i>	MJW	1983	1
<i>F. limbatus</i> <sup>8</sup>	W & W	1906	1
<i>F. pusillus</i> <sup>9</sup>	W & W	1906	19
<i>F. rufulus</i>	MJW	1978	1
<i>Fontinalis antipyretica</i> var. <i>gigantea</i>	MJW	1983	4
<i>Funaria pulchella</i> <sup>10</sup>	AW	1906	0
<i>Grimmia hartmannii</i>	MJW	1983	1
<i>G. orbicularis</i>	JAW	1910	1
<i>G. trichophylla</i> var. <i>trichophylla</i>	TLB	1974	10
<i>G. trichophylla</i> var. <i>stirtonii</i>	GWG	1957	1
<i>G. trichophylla</i> var. <i>tenuis</i>	MJW	1978	1
<i>Heterocladium heteropterum</i> var. <i>flaccidum</i>	EFW	1955	15
<i>Hymenostylium recurvirostrum</i>	AW	1915	4
<i>Hypnum imponens</i>	ACC	1973	2
<i>Leucobryum juniperoides</i>	RW	1983	2
<i>Orthotrichum sprucei</i>	TLB	1974	8
<i>Oxystegus tenuirostris</i>	CAC	1938	6
<i>Philonotis arnellii</i>	MJW	1983	1
<i>P. caespitosa</i>	MJW	1978	11
<i>Plagiomnium ellipticum</i>	MJW	1978	13
<i>Plagiothecium cavifolium</i>	(details not known)		0
<i>P. curvifolium</i> <sup>11</sup>	W & W	?	7
<i>P. laetum</i>	MOH	1973	2
<i>P. ruthei</i>	MOH	1973	2
<i>Pohlia campotrichela</i>	MJW	1978	10
<i>P. cruda</i>	(CC1)	?	1
<i>P. filum</i> <sup>12</sup>	W & W	1902	0
<i>P. lescuriana</i>	MJW	1979	8
<i>P. lutescens</i>	MFVC	1973	41
<i>P. myldemansii</i>	MJW	1979	1
<i>Pottia bryoides</i>	JAW	1910	0
<i>Ptilium cristacastrensis</i>	MD	1968	0
<i>Racomitrium affine</i> <sup>13</sup>	AW	1898	0
<i>R. elongatum</i>	MJW	1978	1
<i>Rhytidadelphus subpinnatus</i>	JA	1981	1
<i>Schistidium alpicola</i> var. <i>alpicola</i>	TLB	1972	5
<i>Seligeria acutifolia</i>	WGT & JAW	1917	0
<i>S. donniana</i>	(details not known)		1
<i>Splachnum ampullaceum</i>	JGD	1965	0
<i>Tortella inclinata</i>	MJW	1978	1
<i>Weissia ruuilans</i>	EFW	1944	4

## NOTES

- Specimen recorded as *F. caespitiformis* in the 1907 *Flora of West Lancashire*.
- Specimen recorded as *F. pusilla* in the 1907 *Flora of West Lancashire*.
- The first authentic record; all vouchers in Hb. Wheldon and Hb. Wilson are other *Pellia* species.
- Published in 1925.
- As *Bryum capillare* var. *flaccidum*.
- All vouchers named *D. flavescens* in Hb. Wheldon and Hb. Wilson lack sporophytes, and therefore cannot be confirmed.

7. John Nowell's voucher of this date has not yet been traced or confirmed.
8. As *Fissidens viridulus*.
9. As *F. viridulus*.
10. As *Funaria muhlenbergii*.
11. As *Plagiothecium denticulatum* var. *aptychus*.
12. As *Webera erecta*.
13. As *Racomitrium alopecurum*.

(CC1) indicates that the vice-county record is given in the first edition of the *Census Catalogue* (1907), but details of the record are not known.

#### RECORDERS

JA	J. Appleyard	MOH	M. O. Hill
HB	H. Beesley	HHK	H. H. Knight
HCB	H. C. Broome	FEM	F. E. Milsom
HJBB	H. J. B. Birks	JN	J. Nowell
TLB	T. L. Blockeel	JAP	J. A. Paton
WNB	W. N. Burrell	JHGP	J. H. G. Peterken
ACC	A. C. Crundwell	RP	R. Perry
CAC	C. A. Cheetham	DAR	D. A. Ratcliffe
KMC	K. M. Cocking	WGT	W. G. Travis
MFVC	M. F. V. Corley	AW	A. Wilson
JGD	J. G. Duckett	EFW	E. F. Warburg
MD	M. Dalby	MJW	M. J. Wigginton
JWF	J. W. Fitzgerald	RW	R. Walker
GWG	G. W. Garlick	JAW	J. A. Wheldon
JH	J. Hodgson	W&W	J. A. Wheldon & A. Wilson

#### DELETIONS FROM THE BRYOPHYTE FLORA OF WEST LANCASHIRE (VC 60)

The taxa listed below have been deleted from the checklist following a redetermination of historical vouchers.

*Barbilophozia hatcheri* (as *B. baueriana*) — vouchers (NMW) are *B. floerkei*.

*Fossombronia caespitiformis* — vouchers (NMW & YRK) are *F. husnotii*.

*Riccardia latifrons* — vouchers unconfirmed.

*Amblystegium compactum* — voucher (NMW) is *A. serpens*.

*Brachythecium salebrosum* — vouchers (NMW & YRK) are *B. mildeanum* and *B. glareosum*.

*Fissidens curvostriatus* — vouchers (NMW) are *F. bryoides* and *F. pusillus*.

*Hygrohypnum luridum* var. *subsphaericarpon* (as *H. palustre* var. *subsphaericarpon*) — vouchers are *H. luridum* var. *luridum*.

*Mnium thomsonii* (as *M. orthorrhynchum*) — vouchers (NMW & YRK) are *M. marginatum*.

*Racomitrium canescens* — vouchers (NMW & YRK) are *R. ericoides*.

*Schistidium strictum* (as *Grimmia apocarpa* var. *gracilis*) — vouchers (NMW & YRK) are *S. apocarpum* var. *apocarpum*.

Whilst this paper is concerned only with additions to and deletions from the Flora of West Lancashire, it is intended that the new Flora should not be tied strictly to the old Watsonian vice-county system. The chief reason for this is that the boundary between V.C. 60 and V.C. 64 bisects the Bowland Uplands, and it is unsatisfactory from a phytogeographical standpoint to confine recording to the V.C. 60. The new Flora, therefore, will encompass the whole of the new administrative county of Lancashire north of the River Ribble, which itself provides a more convenient boundary.

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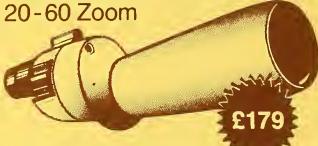
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